



ANNUAL REGISTER

OF THE

UNITED STATES NAVAL ACADEMY,

ANNAPOLIS, MD.

FIFTY-THIRD ACADEMIC YEAR.

1897-'98.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1897.

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THE UNITED STATES NAVAL ACADEMY.

The United States Naval Academy was founded in 1845 by the Hon. George Bancroft, Secretary of the Navy, in the Administration of President James K. Polk. It was formally opened October 10 of that year under the name of the Naval School, with Commander Franklin Buchanan as superintendent. It was placed at Annapolis, Md., on the land occupied by Fort Severn, which was given up by the War Department for the purpose. The course was fixed at five years, of which only the first year and the last were spent at the school, the intervening three years being passed at sea. This arrangement was not strictly adhered to, the exigencies of the service making it necessary, in many cases, to shorten the period of study. In January, 1846, four months after the opening of the school, the students consisted of thirty-six midshipmen of the date of 1840, who were preparing for the examination for promotion; thirteen of the date of 1841, who were to remain until drafted for service at sea; and seven acting midshipmen, appointed after September of the previous year. The midshipmen of the date of 1840 were the first to be graduated, finishing their limited course in July, 1846, and they were followed in order by the subsequent dates until the reorganization of the school in 1850.

In September, 1849, the following board was appointed to revise the plan and the regulations of the Naval School:

Commander William B. Shubrick,
Commander Franklin Buchanan,
Commander Samuel F. Du Pont,
Commander George P. Upshur,
Surgeon W. S. W. Ruschenberger,
Professor William Chauvenet,
Captain Henry Brewerton, United States Army.

The plan reported by the board was approved, and went into operation July 1, 1850. The new organization provided for a course of seven years, the first two and the last two at the school, and the three intermediate years at sea. The school was placed under the supervision of the Bureau of Ordnance and Hydrography, and its name was changed to the United States Naval Academy. The corps of professors was enlarged, the course was extended, and the system of separate departments with executive heads was fully adopted. It was provided that a Board of Visitors should make an annual inspection of the Academy and report upon its condition to the Secretary of the Navy. A suitable vessel was attached to the Academy as a practice ship, and the annual practice cruises were begun.

After the system had been in operation a year new changes were proposed, and the recommendations of the academic board on the subject were referred to the board of examiners for the year 1851, composed of the following-named officers:

Commodore David Conner,
Captain Samuel L. Breese,
Commander C. K. Stribling,
Commander A. Bigelow,
Commander Franklin Buchanan,
Lieutenant Thomas T. Craven.

The change recommended by the board of examiners, and adopted by the Department, consisted mainly in leaving out the requirement of three years of sea service in the middle of the course, thus making the four years of study consecutive. The practice cruise supplied the place of the omitted sea service, and gave better opportunities for training. The change went into operation in November, 1851, together with other improvements recommended by the board. This system has been continued, with some slight modifications, to the present time. The first class to receive the benefit of it was that which entered in 1851. Six members of this class completed the course in three years, and were graduated in June, 1854; the rest of the class followed in 1855.

In May, 1861, on the outbreak of the war, the Academy was removed to Newport, R. I. The three upper classes were detached and ordered to sea, and the remaining acting midshipmen were quartered in the Atlantic House and on board the frigates *Constitution* and *Santee*. In the summer of 1865 the Academy was removed back to Annapolis, where it has since remained.

When the Bureau of Navigation was established, July 5, 1862, the Academy was placed under its supervision; March 1, 1867, it was placed under the direct care and supervision of the Navy Department, the administrative routine and financial management being still conducted through the Bureau. On the 11th of March, 1869, this official connection with the Bureau ceased, but was renewed by the general order of the Navy Department issued June 25, 1889.

The term of the academic course was changed by law, March 3, 1873, from four to six years. The change took effect with the class that entered in the following summer.

In 1866 a class of acting third assistant engineers was ordered to the Academy for instruction. The course embraced the subjects of steam engineering, mechanism, chemistry, mechanics, and practical exercises with the steam engine and in the machine shop. This class was graduated in June, 1868, together with two cadet engineers who had entered the academy in 1867. After an interval of four years, in October, 1871, a new class of cadet engineers was admitted. This class followed a two years' course, somewhat more extended than that of the class of 1868, and was graduated in 1873. In 1872 and 1873 new classes were admitted, the first of which left the Academy in 1874 and the second in 1875. By an act of Congress approved February 24, 1874, the course of instruction for cadet engineers was made four years instead of two; the new provision was first applied to the class entering the Academy in the year 1874. This class was graduated in June, 1878.

By an act of Congress approved August 5, 1882, it was provided that from that date "there shall be no appointments of cadet-midshipmen or cadet-engineers at the Naval Academy, but in lieu thereof naval cadets shall be appointed from each Congressional district and at large, as now provided by law for cadet-midshipmen, and all the undergraduates at the Naval Academy shall hereafter be designated and called 'naval cadets;' and from those who successfully complete the six years' course, appointments shall hereafter be made as it is necessary to fill vacancies in the lower grades of the line and Engineer Corps of the Navy and of the Marine Corps: *And provided further*, That no greater number of appointments into these grades shall be made each year than shall equal the number of vacancies which has occurred in the same grades during the preceding year; such appointments to be made from the graduates of the year, at the conclusion of their six years' course, in the order of merit, as determined by the academic board of the Naval Academy; the assignment to the various corps to be made by the Secretary of the Navy upon the recommendation of the academic board. But nothing herein contained shall reduce the number of appointments from such graduates below ten in each year, nor deprive of such appointment any graduate who may complete the six years' course during the year eighteen hundred and eighty-two. And if there be a surplus of graduates, those who do not receive such appointment shall be given

a certificate of graduation, an honorable discharge, and one year's sea pay, as now provided by law for cadet-midshipmen; and so much of section fifteen hundred and twenty-one of the Revised Statutes as is inconsistent herewith is hereby repealed.

"That any cadet whose position in his class entitles him to be retained in the service may, upon his own application, be honorably discharged at the end of the four years' course at the Naval Academy, with a proper certificate of graduation."

The act of Congress approved March 2, 1889, provides that "the Academic Board of the Naval Academy shall on or before the thirtieth day of September in each year separate the first class of naval cadets then commencing their fourth year into two divisions, as they may have shown special aptitude for the duties of the respective corps, in the proportion which the aggregate number of vacancies occurring in the preceding fiscal year ending on the thirtieth day of June in the lowest grades of commissioned officers of the line of the Navy and Marine Corps of the Navy shall bear to the number of vacancies to be supplied from the Academy occurring during the same period in the lowest grade of commissioned officers of the engineer corps of the Navy; and the cadets so assigned to the line and Marine Corps division of the first class shall thereafter pursue a course of study arranged to fit them for service in the line of the Navy, and the cadets so assigned to the Engineer Corps division of the first class shall thereafter pursue a separate course of study arranged to fit them for service in the Engineer Corps of the Navy, and the cadets shall thereafter, and until final graduation, at the end of their six years' course, take rank by merit with those in the same division, according to the merit marks; and from the final graduates of the line and Marine Corps division, at the end of their six years' course, appointments shall be made hereafter as it shall be necessary to fill vacancies in the lowest grades of commissioned officers of the line of the Navy and Marine Corps; and the vacancies in the lowest grades of the commissioned officers of the Engineer Corps of the Navy shall be filled in like manner by appointments from the final graduates of the Engineer division at the end of their six years' course: *Provided*, That no greater number of appointments into the said lowest grades of commissioned officers shall be made each year than shall equal the number of vacancies which shall have occurred in the same grades during the fiscal year then current; such appointments to be made from the final graduates of the year, in the order of merit as determined by the Academic Board of the Naval Academy, the assignment to be made by the Secretary of the Navy upon the recommendation of the Academic Board at the conclusion of the fiscal year then current; but nothing contained herein or in the naval appropriation act of August fifth, eighteen hundred and eighty-two, shall reduced the number of appointments of final graduates at the end of their six years' course below twelve in each year to the line of the Navy, and not less than two shall be appointed annually to the Engineer Corps of the Navy, nor less than one annually to the Marine Corps; and if the number of vacancies in the lowest grades aforesaid, occurring in any year shall be greater than the number of final graduates of that year, the surplus vacancies shall be filled from the final graduates of following years, as they shall become available."

"That after the fourth day of March, eighteen hundred and eighty-nine, the minimum age of admission of cadets to the Academy shall be fifteen years and the maximum age twenty years."

SUPERINTENDENTS

OF THE

UNITED STATES NAVAL ACADEMY.

	Assumed command.
Commander Franklin Buchanan.....	Sept. 3, 1845
Commander George P. Upshur.....	Mar. 15, 1847
Commander Cornelius K. Stribling.....	July 1, 1850
Commander Louis M. Goldsborough.....	Nov. 1, 1853
Captain George S. Blake.....	Sept. 15, 1857
Rear-Admiral David D. Porter.....	Sept. 9, 1865
Commodore John L. Worden.....	Dec. 1, 1869
Rear-Admiral C. R. P. Rodgers.....	Sept. 22, 1874
Commodore Foxhall A. Parker.....	July 1, 1878
Rear-Admiral George B. Balch.....	Aug. 2, 1879
Rear-Admiral C. R. P. Rodgers.....	June 13, 1881
Captain F. M. Ramsay.....	Nov. 14, 1881
Commander W. T. Sampson.....	Sept. 9, 1886
Captain R. L. Phythian.....	June 30, 1890
Captain P. H. Cooper.....	Nov. 15, 1894

BOARD OF VISITORS, JUNE, 1897.

Captain JOHN WILKES, Charlotte, N. C., *President*.

J. W. MILLER, Esq., New York City, *Vice-President*.

Honorable THOMAS H. CARTER, U. S. Senate, Montana.

Honorable WILLIAM LINDSAY, U. S. Senate, Kentucky.

Honorable F. H. WILSON, House of Representatives, New York.

Honorable G. E. FOSS, House of Representatives, Illinois.

JOSEPH J. HART, Esq., Milford, Pa.

JOHN L. PRATT, Esq., St. Paul, Minn.

ALFRED HEMENWAY, Esq., Boston, Mass.

GEORGE A. GARRETSON, Esq., Cleveland, Ohio.

STEPHEN W. KELLOGG, Esq., Waterbury, Conn.

FRANK W. HACKETT, Esq., Washington, D. C.

ACADEMIC CALENDAR.

1897-'98.

1897.

October 1.—Beginning of first term Friday.

1898.

January 24-29.—Semi-annual examination Monday-Saturday.

January 29.—End of first term Saturday.

May 14.—Examination of candidates for admission as naval
cadets Saturday.

May 31.—End of academic year, 1897-'98 Tuesday.

May 30-June 4.—Annual examination .. Monday-Saturday.

September 1.—Examination of candidates for admission as
naval cadets Thursday.

October 1.—Beginning of first term, 1898-'99 Saturday.

The academic months end on the following days:

1897-'98.

October	October 30	February	February 26
November	November 27	March	March 26
December	December 25	April	April 23
January	January 22	May	May 21

1898-'99.

October	October 29	December	December 24
November	November 26	January	January 21

CALENDAR FOR 1897-'98.

SEPTEMBER.							APRIL.						
Sun.	M.	T.	W.	T.	F.	Sat.	Sun.	M.	T.	W.	T.	F.	Sat.
			1	2	3	4						1	2
5	6	7	8	9	10	11	3	4	5	6	7	8	9
12	13	14	15	16	17	18	10	11	12	13	14	15	16
19	20	21	22	23	24	25	17	18	19	20	21	22	23
26	27	28	29	30			24	25	26	27	28	29	30
OCTOBER.							MAY.						
					1	2	1	2	3	4	5	6	7
3	4	5	6	7	8	9	8	9	10	11	12	13	14
10	11	12	13	14	15	16	15	16	17	18	19	20	21
17	18	19	20	21	22	23	22	23	24	25	26	27	28
24	25	26	27	28	29	30	29	30	31				
31													
NOVEMBER.							JUNE.						
	1	2	3	4	5	6			1	2	3	4	
7	8	9	10	11	12	13	5	6	7	8	9	10	11
14	15	16	17	18	19	20	12	13	14	15	16	17	18
21	22	23	24	25	26	27	19	20	21	22	23	24	25
28	29	30					26	27	28	29	30		
DECEMBER.							JULY.						
			1	2	3	4					1	2	
5	6	7	8	9	10	11	3	4	5	6	7	8	9
12	13	14	15	16	17	18	10	11	12	13	14	15	16
19	20	21	22	23	24	25	17	18	19	20	21	22	23
26	27	28	29	30	31		24	25	26	27	28	29	30
							31						
JANUARY.							AUGUST.						
						1		1	2	3	4	5	6
2	3	4	5	6	7	8	7	8	9	10	11	12	13
9	10	11	12	13	14	15	14	15	16	17	18	19	20
16	17	18	19	20	21	22	21	22	23	24	25	26	27
23	24	25	26	27	28	29	28	29	30	31			
30	31												
FEBRUARY.							SEPTEMBER.						
		1	2	3	4	5				1	2	3	
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28						25	26	27	28	29	30	
MARCH.							OCTOBER.						
		1	2	3	4	5						1	8
6	7	8	9	10	11	12	2	3	4	5	6	7	8
13	14	15	16	17	18	19	9	10	11	12	13	14	15
20	21	22	23	24	25	26	16	17	18	19	20	21	22
27	28	29	30	31			23	24	25	26	27	28	29
							30	31					

OFFICERS

ATTACHED TO THE

UNITED STATES NAVAL ACADEMY.

Superintendent,

CAPTAIN P. H. COOPER.

Assistant to the Superintendent in charge of Buildings and Grounds,

COMMANDER A. ROSS.

Assistant to the Superintendent and Secretary of the Academic Board,

LIEUTENANT G. A. MERRIAM.

Commandant of Cadets and Head of Department of Discipline,

COMMANDER EDWIN WHITE.

Assistants,

LIEUTENANT HUGO OSTERHAUS,

LIEUTENANT D. DANIELS,

LIEUTENANT W. F. FULLAM,

LIEUTENANT E. F. LEIPER.

SEAMANSHIP.

Head of Department,

COMMANDER C. M. THOMAS.

Assistants,

LIEUTENANT C. A. GOVE,

LIEUTENANT W. S. BENSON,

LIEUTENANT D. P. MENEFEE.

ORDNANCE.

Head of Department,

LIEUTENANT-COMMANDER R. R. INGERSOLL.

Assistants,

LIEUTENANT H. S. KNAPP,

LIEUTENANT W. R. SHOEMAKER,

ENSIGN R. H. LEIGH.

Sword Master,

A. J. CORBESIER.

Assistant Sword Masters,

J. B. RETZ,

G. HEINTZ.

NAVIGATION.

Head of Department,

COMMANDER CHARLES BELKNAP.

Assistants,

LIEUTENANT C. W. BARTLETT,

LIEUTENANT YORK NOËL,

LIEUTENANT E. H. TILLMAN.

STEAM ENGINEERING.

Head of Department,

CHIEF ENGINEER G. H. KEARNY.

Assistants,

PASSED ASSISTANT ENGINEER F. J. SCHELL,
PASSED ASSISTANT ENGINEER F. H. CONANT,
PASSED ASSISTANT ENGINEER L. M. NULTON,
PASSED ASSISTANT ENGINEER U. T. HOLMES,
ASSISTANT ENGINEER GEORGE W. LAWS.

MECHANICS.

Head of Department,

COMMANDER HARRY KNOX.

Assistants,

LIEUTENANT H. P. HUSE,

LIEUTENANT C. S. WILLIAMS,

LIEUTENANT H. F. BRYAN,

ENSIGN B. B. BIERER.

PROFESSOR W. W. JOHNSON, A. M.

PHYSICS.

Head of Department,

PROFESSOR N. M. TERRY, A. M., PH. D.

Assistants,

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LIEUTENANT G. F. COOPER,

ENSIGN LUKE MCNAMEE,

ENSIGN WALTER S. CROSLEY,

PROFESSOR PAUL J. DASHIELL, PH. D.

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Head of Department,

PROFESSOR WILLIAM W. HENDRICKSON.

Assistants,

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LIEUTENANT E. LLOYD, JR.,
LIEUTENANT H. G. DRESEL,
ENSIGN C. B. BRITTAIN,
ENSIGN W. H. BUCK,
ENSIGN E. T. POLLOCK.

ENGLISH.

Head of Department,

LIEUTENANT-COMMANDER R. T. JASPER.

Assistants,

LIEUTENANT E. B. UNDERWOOD,
LIEUTENANT C. B. T. MOORE,
LIEUTENANT C. C. ROGERS,
LIEUTENANT G. R. CLARK,
LIEUTENANT J. H. SHIPLEY,
ENSIGN VICTOR BLUE,
PROFESSOR W. W. FAY, A. M.,
PROFESSOR A. N. BROWN.

LANGUAGES.

Head of Department,

COMMANDER F. M. WISE.

Assistants,

LIEUTENANT W. E. SAFFORD,
PROFESSOR JULES LEROUX,
PROFESSOR HENRI MARION,
PROFESSOR SAMUEL GARNER, PH. D.,
ASSISTANT PROFESSOR P. J. DES GARENNES, A. M.

DRAWING.

Head of Department,

LIEUTENANT R. G. PECK.

Assistants,

LIEUTENANT A. L. KEY,
ENSIGN A. L. NORTON,
PROFESSOR C. F. BLAUVELT.

In charge of Branch, Naval Construction, Post Graduate Course,

ASSISTANT NAVAL CONSTRUCTOR R. P. HOBSON.

Director of Physical Training,

PASSED ASSISTANT SURGEON A. M. D. MCCORMICK.

Instructor,

MATTHEW STROHM.

OFFICERS NOT ATTACHED TO ACADEMIC STAFF.

COMMANDER E. D. F. HEALD, *in Charge of Ships.*

SURGEON G. E. H. HARMON.

PASSED ASSISTANT SURGEON G. H. BARBER.

PASSED ASSISTANT SURGEON L. L. VON WEDEKIND.

PAY DIRECTOR T. T. CASWELL, *Pay Officer and General Storekeeper.*

PAYMASTER J. P. LOOMIS, *Commissary and Cadets' Storekeeper.*

CHAPLAIN H. H. CLARK.

PROFESSOR M. OLIVER, *Librarian.*

J. M. SPENCER, *Assistant Librarian.*

R. M. CHASE, *Secretary.*

Santee and Ships.

BOATSWAIN J. S. SINCLAIR.

BOATSWAIN C. F. PIERCE.

GUNNER A. A. PHELPS.

CARPENTER J. B. FLETCHER.

Mate,

C. J. MURPHY.

Marine Officers.

MAJOR C. F. WILLIAMS, *Commanding Marines.*

FIRST LIEUTENANT J. H. PENDLETON.

ACADEMIC BOARD.

THE SUPERINTENDENT.

THE COMMANDANT OF CADETS.

THE HEAD OF THE DEPARTMENT OF SEAMANSHIP.

THE HEAD OF THE DEPARTMENT OF ORDNANCE.

THE HEAD OF THE DEPARTMENT OF NAVIGATION.

THE HEAD OF THE DEPARTMENT OF STEAM ENGINEERING.

THE HEAD OF THE DEPARTMENT OF MECHANICS.

THE HEAD OF THE DEPARTMENT OF PHYSICS.

THE HEAD OF THE DEPARTMENT OF MATHEMATICS.

THE HEAD OF THE DEPARTMENT OF ENGLISH.

THE HEAD OF THE DEPARTMENT OF LANGUAGES.

THE HEAD OF THE DEPARTMENT OF DRAWING.

CADET OFFICERS OF THE UNITED STATES NAVAL ACADEMY.

CADET LIEUTENANT-COMMANDER,

J. HALLIGAN, JR.

CADET LIEUTENANT AND ADJUTANT,

E. WOODS.

CADET CHIEF PETTY OFFICER,

J. F. BABCOCK.

CADET PASSED ASSISTANT ENGINEER,

H. J. ELSON.

CADET ASSISTANT ENGINEER,

H. T. WRIGHT.

CADET LIEUTENANTS,

COTTEN, L. A.,

TARDY, W. B.,

CRONAN, W. P.,

SMITH, G. L.

CADET JUNIOR LIEUTENANTS,

PINNEY, F. L.,

BRIGGS, W. G.,

NELSON, C. P.,

BOONE, C.

CADET ENSIGNS,

MCINTYRE, E. W.,

EVANS, F. T.,

WILLIAMS, H.,

SWEET, G. C.

CADET PETTY OFFICERS OF THE FIRST CLASS,

First Division.

MARBLE,

ABELE,

JOHNSON, T. L.,

TARRANT.

Second Division.

WILLIAMS, Y. S.,

HANRAHAN,

MACY,

TAUSSIG.

Third Division.

BROWN, M. H.,

BRIGGS, Z. E.,

PETTENGILL,

LACKEY.

Fourth Division.

WATTS,

HAND,

ROPER,

BUCHANAN.

CADET PETTY OFFICERS OF THE SECOND CLASS,

First Division.

GLEASON,

THOMAS,

BAILEY,

CLEMENT.

Second Division.

FENNER,

WOODWARD,

GREENSLADE,

WOOD, W. C.

Third Division.

WHITE,

KIMBERLY,

HELM,

COURTNEY.

Fourth Division.

SPARROW,

SHAPLEY,

HUNT,

MAJOR.

SUMMER CRUISE, 1897.

OFFICERS AND NAVAL CADETS.

UNITED STATES PRACTICE SHIP MONONGAHELA.

June 5 to August 28.

COMMANDER EDWIN WHITE, *Commanding.*
 LIEUTENANT E. B. UNDERWOOD, *Executive Officer.*
 LIEUTENANT YORK NOËL, *Navigator.*
 LIEUTENANT W. S. BENSON, *Watch Officer.*
 LIEUTENANT C. C. ROGERS, *Watch Officer.*
 LIEUTENANT G. R. CLARK, *Watch Officer.*
 LIEUTENANT E. F. LEIPER, *Watch Officer.*
 LIEUTENANT C. S. WILLIAMS, *Watch Officer.*
 ENSIGN W. R. SHOEMAKER, *Watch Officer.*
 SURGEON A. G. CABELL.
 ASSISTANT SURGEON D. H. MORGAN.
 PASSED ASSISTANT PAYMASTER F. T. ARMS.
 CHAPLAIN H. H. CLARK.

First Class—Line Division.

Abele, C. A.	Cronan, W. P.	Macy, U. S.	Sweet, G. C.
Babcock, J. F.	Evans, F. T.	Marble, R. N., jr.	Tardy, W. B.
Boone, C.	Halligan, J., jr.	Nelson, C. P.	Tarrant, W. T.
Briggs, W. G.	Hand, J. A., jr.	Pettengill, G. T.	Wells, W. B. ¹
Briggs, Z. E.	Hanrahan, D. C.	Pinney, F. L.	Williams, Henry.
Brown, M. H.	Johnson, T. L.	Roper, W. G.	Williams, Y. S.
Cotten, L. A.	McIntyre, E. W.	Smith, G. L.	Woods, E.

Second Class.

Bailey, J. E.	Evans, H. H.	Lackey, H. E.	Shapley, L. S.
Beckner, J. T.	Fenner, E. B.	Larimer, E. B.	Sparrow, H. G.
Bisset, G. A.	Fischer, C. H.	Lewis, J. E.	Taussig, J. K.
Bloch, C. C.	Forman, C. W.	Madison, Z. H., jr.	Thomas, S. B.
Bowers, J. T.	Gilmer, J. B.	Major, S. I. M.	Tomb, J. H.
Branch, F. O.	Gleason, H. M.	Mathews, J. E.	Vincent, R. W.
Brinser, H. L.	Greenslade, J. W.	Miller, W. S.	Watson, A. E.
Buchanan, A.	Hatch, C. B., jr.	Morgan, C. E.	Weichert, E. A.
Clement, J. W. L., jr.	Helm, F. P.	Morrison, F.	West, A. S. ²
	Horne, F. J.	Pope, R. E.	White, R. D.
Cole, C. W.	Hunt, W. M.	Royall, H. H.	Wood, W. C.
Combs, J. R.	Johnson, A. W.	Sadler, E. J.	Woodward, C. H.
Courtney, C. E.	Kalbfus, E. C.	Sayles, W. R.	Yates, A. F. H.
Dungan, P. B.	Kimberly, V. A.	Shackford, C.	

¹ NOTE.—Was transferred to the Engineer Division after expiration of cruise.² Transferred (convalescent) from *Monongahela* to sick quarters, Naval Academy August 20.

Third Class.

Abernathy, R. A.	Dodd, E. H.	Kear, C. R.	Smith, W.
Arnold, C. L.	Doyle, S. H. R.	Keating, A. B.	Snyder, C. P.
Barthallow, B. G.	Ellis, H.	Landenberger, G. B.	Spilman, J. A.
Berrien, F. D.	Emboly, J. W.	Landram, C. E.	Steele, G. W., jr.
Berry, R. L.	Ferguson, W. B., jr.	McEntee, W.	Svarz, E. P.
Boardman, W. H.	Foley, P.	Mann, J. F.	Tamura, H.
Bricker, W. F.	Freeman, C. S.	Menner, R. T.	Timmons, J. W.
Bryant, S. W.	Gannon, S.	Mitchell, W. G.	Tomb, W. V.
Bulmer, B. T.	Gardiner, C. A.	Morris, R.	Train, C. R.
Caffery, J. M.	Hellweg, J. F.	Naile, F. R.	Wade, C. T.
Cage, H. K.	Howard, A. C.	Noa, L.	Wainwright, J. D.
Case, W. S.	Huff, C. P.	Osterhaus, H. W.	Winston, H. T.
Church, J. G.	Hulick, C. K.	Riddle, W. K.	Wood, R. T.
Cocke, H. C.	Hyland, J. J.	Roosevelt, H. L.	Woods, S.
Comfort, J. H.	Jackson, E. S., jr.	Schoenfeld, J. W.	Wortman, W. K.
Cresap, E. O.	James, J. F.	Scranton, E. E.	Wright, L. E., jr.
Defrees, J. R.	Johnston, H.	Shea, W. H.	Wyman, H. L.

UNITED STATES PRACTICE SHIP STANDISH.

*June 6 to August 26.*LIEUTENANT ALEXANDER MCCrackin, *Commanding.*LIEUTENANT H. C. GEARING, *Executive Officer.*

PASSED ASSISTANT ENGINEER U. T. HOLMES.

NAVAL CADETS.

First Class—Engineer Division.

Constien, E. T.	Mitchell, A. N.
Dinger, H. C.	Schofield, J. A.
Elson, H. J.	Shane, L.
Faller, G. W.	Sheffield, F. L.
Graham, J. S.	Wright, H. T.

SYNOPSIS OF THE CRUISE, 1897.

MONONGAHELA.

Cadets, first class, line division; the second class, and the third class embarked June 5.

Sailed from Annapolis for Funchal, Madeira, June 7.

Passed Capes of Virginia June 9.

Arrived at Funchal, Madeira, July 1.

Sailed from Funchal July 15.

Arrived at Lynnhaven Bay August 14.

Arrived at Annapolis August 23.

Cruise ended August 28.

STANDISH.

Cadets, first class, engineer division, embarked June 5.

Sailed from Annapolis June 7.

Arrived at Newport News, Va., June 10. Sailed June 17.

Arrived at Chester, Pa., June 19. Sailed June 22.

Arrived at League Island June 22. Sailed June 24.

Arrived at Philadelphia, Pa., June 24. Sailed July 10.
 Arrived at Newcastle, Del., July 10 Sailed July 13.
 Arrived at navy-yard, Brooklyn, July 14. Sailed July 28.
 Arrived at Bristol July 29. Sailed July 30.
 Arrived at Providence July 30. Sailed July 31.
 Arrived at Newport July 31. Sailed August 2.
 Arrived at Boston August 3. Sailed August 6.
 Arrived at Bath August 6. Sailed August 7.
 Arrived at Portland August 7. Sailed August 9.
 Arrived at Portsmouth August 9. Sailed August 10.
 Arrived at New York August 12. Sailed August 13.
 Arrived at Lynnhaven Bay August 14. Sailed August 15.
 Arrived at Naval Academy August 16.
 Cruise ended August 23.

PRACTICAL INSTRUCTION AT NAVAL ACADEMY.

Naval cadets of fourth class	37
On board practice ships <i>Monongahela</i> and <i>Standish</i>	160
Absent on sick leave	3

CLASSES OF THE NAVAL CADETS AT THE BEGINNING OF THE ACADEMIC YEAR, 1897-'98.

[Corrected to October 2, 1897.]

*Naval cadets of the class appointed in 1892, performing required service afloat—
Line Division—25 members.*

Order of gen- eral merit.	Name.	State from which appointed.	Date of admission.
*1	Robinson, Richard Hallett ¹	Ohio	Sept. 6, 1892
2	Holden, Jonas Hannibal.....	Vermont.....	May 20, 1892
3	Craven, Thomas Tingey.....	New Hampshire.....	Sept. 19, 1892
4	Poor, Charles Longstreet.....	New York.....	Sept. 6, 1892
5	Earle, Ralph.....	Massachusetts.....	Sept. 6, 1892
6	Kalbach, Andrew Edwin.....	Pennsylvania.....	July 1, 1892
7	Walker, Ralph Eric.....	Indiana.....	May 20, 1892
8	Wurtsbaugh, Daniel Wilbert.....	Texas.....	May 20, 1892
9	Wettengel, Ivan Cyrus.....	Colorado.....	Sept. 6, 1892
10	Tozer, Charles Maxson.....	New York.....	Sept. 19, 1892
11	Cluverius, Wat Tyler, jr.....	Louisiana.....	May 20, 1892
12	Wood, Duncan Mahon.....	Alabama.....	Sept. 30, 1892
13	Palmer, Leigh Carlyle.....	Missouri.....	Sept. 6, 1892
14	Kearney, Thomas Albert.....	Missouri.....	Sept. 6, 1892
15	MacArthur, Arthur, jr.....	Wisconsin.....	Sept. 6, 1892
16	Ridgely, Frank Eugene.....	Atlarge.....	Sept. 6, 1892
17	Knox, Dudley Wright.....	Tennessee.....	Sept. 6, 1892
18	Gilpin, Charles Edward.....	Michigan.....	Sept. 6, 1892
19	Ellis, Mark Saint Clair.....	Arkansas.....	July 1, 1892
20	McCauley, Edward, jr.....	New York.....	Oct. 10, 1892
21	Jessop, Earl Percy.....	West Virginia.....	Sept. 6, 1892
22	Roys, John Holley.....	New York.....	Sept. 6, 1892
23	Mustin, Henry Croskey.....	Tennessee.....	Sept. 6, 1892
24	Curtin, Roland Irvin.....	Pennsylvania.....	Sept. 6, 1892
25	Bronson, Amon, jr.....	Nebraska.....	Sept. 30, 1892

Engineer Division—12 members.

*1	Leiper, Charles Lewis.....	Pennsylvania.....	Sept. 6, 1892
2	Lincoln, Gatewood Sanders.....	Missouri.....	May 20, 1892
3	Fitzgerald, Edward Thomas.....	Texas.....	Sept. 13, 1892
4	Bisset, Henry Overstreet.....	Maryland.....	Sept. 6, 1892
5	Marshall, Albert Ware.....	Texas.....	Sept. 6, 1892
6	Burt, Charles Perry.....	Georgia.....	Sept. 6, 1892
7	Castleman, Kenneth Galleher.....	Kentucky.....	Sept. 6, 1892
8	Littlefield, William Lord.....	Massachusetts.....	Sept. 30, 1892
9	Washington, Pope.....	North Carolina.....	Sept. 7, 1892
10	Rice, George Benjamin.....	Kentucky.....	Sept. 6, 1892
11	Henry, James Buchanan, jr.....	New York.....	Sept. 6, 1892
12	Crenshaw, Arthur.....	Alabama.....	Sept. 6, 1892

¹ NOTE.—Pursuing special studies abroad.

*Naval cadets of the class appointed in 1893, performing required service afloat—
Line Division—37 members.*

Order of gen- eral merit.	Name.	State from which appointed.	Date of admission.
* 1	Du Bose, William Gunnell ¹	Georgia.....	Sept. 6, 1893
* 2	Eggert, Ernest Frederick ¹	Michigan.....	Sept. 6, 1893
* 3	Powell, Joseph Wright ¹	New York.....	May 19, 1893
* 4	Yarnell, Harry Ervin.....	Iowa.....	Sept. 6, 1893
* 5	Perrill, Harlan Page.....	Indiana.....	Sept. 6, 1893
6	Hepburn, Arthur Japy.....	Pennsylvania.....	Sept. 22, 1893
7	Theleen, David Elias.....	Wisconsin.....	Sept. 6, 1893
8	Pressey, Alfred Warren.....	Nebraska.....	May 19, 1893
9	Jones, Needham Lee.....	Mississippi.....	Sept. 6, 1893
10	Reynolds, William Herbert.....	Georgia.....	Sept. 6, 1893
11	Overstreet, Luther Martin.....	Nebraska.....	Sept. 6, 1893
12	Hart, Thomas Charles.....	Michigan.....	May 19, 1893
13	Murfin, Orin Gould.....	Ohio.....	Sept. 6, 1893
14	Sargent, Leonard Rundlett.....	Minnesota.....	Sept. 6, 1893
15	Miller, Cyrus Robinson.....	California.....	Sept. 6, 1893
16	Chase, Gilbert.....	Virginia.....	Sept. 6, 1893
17	White, William Russell.....	Arizona.....	Sept. 6, 1893
18	Graeme, Joseph Wright.....	Pennsylvania.....	Sept. 6, 1893
19	Houston, Victor Stuart.....	South Dakota.....	Sept. 22, 1893
20	Sexton, Walter Roswell.....	Illinois.....	May 19, 1893
21	Boyd, David French, jr.....	Alabama.....	May 19, 1893
22	Holman, Frederic Ralph.....	Iowa.....	May 19, 1893
23	Falconer, Walter Maxwell.....	Ohio.....	Sept. 6, 1893
24	McCarthy, Albert Henry.....	Iowa.....	Sept. 6, 1893
25	Williams, Hilary.....	Indiana.....	Sept. 6, 1893
26	McDowell, Willis.....	Pennsylvania.....	May 19, 1893
27	Duncan, Oscar Dibble.....	Alabama.....	Sept. 6, 1893
28	Smith, Arthur St. Clair, jr.....	Iowa.....	Sept. 6, 1893
29	Henderson, Robert William.....	Ohio.....	Sept. 22, 1893
30	Kautz, Austin.....	Washington.....	May 19, 1893
31	Owens, Charles Truesdale.....	Pennsylvania.....	Sept. 6, 1893
32	Giles, William Pinkney.....	Texas.....	May 20, 1893
33	Asserson, William Christian.....	New York.....	Sept. 25, 1893
34	Owen, Alfred Crosby.....	District of Columbia.....	Sept. 6, 1893
35	Magill, Samuel George, jr.....	North Dakota.....	May 19, 1893
36	Landis, Irwin Franklin.....	Kansas.....	Sept. 6, 1893
37	Kempff, Clarence Selby.....	California.....	May 19, 1893

Engineer Division—10 members.

1	Mahoney, Daniel Sullivan.....	Michigan.....	Sept. 6, 1893
2	Collins, Henry Lafayette.....	Pennsylvania.....	Sept. 6, 1893
3	Richardson, Louis Clark.....	South Carolina.....	Sept. 6, 1893
4	Graham, Andrew Thomas.....	Illinois.....	Sept. 6, 1893
5	Jenson, Henry Norman.....	Wisconsin.....	Sept. 6, 1893
6	Pratt, Peter Lloyd.....	Illinois.....	May 19, 1893
7	Leahy, William Daniel.....	Wisconsin.....	May 19, 1893
8	Webber, George.....	Arkansas.....	Sept. 6, 1893
9	Keenan, Ernest Clinton.....	New York.....	Sept. 6, 1893
10	Van Orden, George.....	Michigan.....	May 19, 1893

¹Pursuing post-graduate course in naval construction, at Naval Academy.

Naval Cadets of the First Class—Line Division—28 members.

Name.	State from which appointed.	Date of admission.	Sea service in practice ships.	
			Months.	Days.
Abele, Clarence Arthur	Massachusetts	Sept. 6, 1894	8	10
Babcock, John Franklin	New York	Sept. 22, 1894	8	10
Boone, Charles	Ohio	Sept. 6, 1894	8	10
Briggs, Wilber Gerheart	New York	Sept. 6, 1894	8	8
Briggs, Zeno Everett	Nebraska	Sept. 22, 1894	8	10
Brown, Morris Hamilton	Indiana	May 19, 1894	11	3
Cotten, Lyman Atkinson	North Carolina	Sept. 6, 1894	8	10
Cronan, William Pigott	Connecticut	Sept. 6, 1894	8	10
Evans, Franck Taylor	At large	Sept. 6, 1894	8	10
Halligan, John, jr.	Massachusetts	Sept. 6, 1894	8	10
Hand, James Alexander, jr.	South Dakota	Sept. 6, 1894	8	10
Hanrahan, David Carlisle	Wisconsin	May 19, 1894	11	3
Johnson, Thomas Lee	Kansas	May 19, 1894	11	3
McIntyre, Edward William	California	Sept. 6, 1894	8	10
Macy, Ulysses Samuel	Missouri	Sept. 6, 1894	8	10
Marble, Ralph Norris, jr.	Minnesota	May 19, 1894	11	3
Nelson, Charles Preston	Massachusetts	May 19, 1894	11	3
Pettengill, George Tilford	Idaho, at large	Sept. 22, 1894	8	10
Pinney, Frank Lucius	Connecticut	Sept. 6, 1894	8	10
Roper, Walter Gordon	Georgia	Sept. 22, 1894	8	10
Smith, George Leonard	New Hampshire	Sept. 6, 1894	8	10
Sweet, George Cook	New York	Sept. 22, 1894	8	10
Tardy, Walter Benjamin	Arkansas	May 19, 1894	11	3
Tarrant, William Theodore	Texas	Sept. 6, 1894	8	10
¹ Watts, William Carleton	Pennsylvania	Sept. 22, 1894	5	15
Williams, Henry	Maryland	Sept. 6, 1894	8	10
Williams, Yancey Sullivan	South Carolina	Sept. 6, 1894	8	8
Woods, Edward	Massachusetts	May 19, 1894	11	3

Engineer Division—11 members.

Constien, Edward Theodore	Pennsylvania	May 19, 1894	10	26
Dinger, Henry Charles	Wisconsin	May 19, 1894	10	28
Elson, Herman Jacob	Mississippi	May 19, 1894	10	28
Faller, Guy William	Wisconsin	May 19, 1894	10	26
Graham, John Sisson	Colorado	May 19, 1894	10	26
Mitchell, Alexander Neely	Ohio	Sept. 6, 1894	8	3
Schofield, John Anderson	Missouri	Sept. 6, 1894	8	3
Shane, Louis	Nebraska	Sept. 6, 1894	8	5
^s Sheffield, Fletcher Lamar	Georgia	Sept. 6, 1893	8	18
² Wells, William Benefiel	Iowa	May 19, 1894	11	3
Wright, Henry Tutwiler	Alabama	Sept. 6, 1894	8	5

¹ NOTE.—Granted sick leave from June 5 to September 30, 1897.^s Sick leave from February 13 to May 28, 1897; transferred from next preceding class.² NOTE.—Assigned to Engineer Division after making cruise in Monongahela.

Naval Cadets of the Second Class—55 members.

Name.	State from which appointed.	Date of admission.	Sea service in practice ships.	
			Months.	Days.
Bailey, John Eliot	Michigan	May 20, 1895	8	10
Beckner, John Taliaferro	Kentucky	May 20, 1895	8	10
Bisset, Guy Aloysius	Kentucky	Sept. 6, 1895	5	17
Bloch, Claude Charles	Kentucky	Sept. 6, 1895	5	17
Bowers, John Treadwell	New Jersey	Sept. 20, 1895	5	17
Branch, Frank Oak	Indiana	Sept. 6, 1895	5	17
Brinser, Harry Lerch	Pennsylvania	Sept. 6, 1895	5	17
Buchanan, Allen	Indiana	Sept. 6, 1895	5	17
Clement, James Wilkinson Legare, jr	South Carolina	Sept. 27, 1895	5	17
Cole, Cyrus Willard	Ohio	Sept. 20, 1895	5	17
Combs, James Rockwell	Illinois	Sept. 6, 1895	5	17
Courtney, Charles Edward	New York	May 20, 1895	8	10
Dungan, Paul Baxter	Nebraska	Sept. 6, 1895	5	17
Evans, Herbert Heard	Mississippi	Sept. 6, 1895	5	17
Fenner, Edward Blaine	New York	May 20, 1895	8	10
Fischer, Charles Hermann	Pennsylvania	Sept. 6, 1895	5	17
Forman, Charles William	Illinois	Sept. 6, 1895	5	17
sGilmer, James Blair	Virginia	May 19, 1894	11	3
Gleason, Henry Miller	Kansas	May 20, 1895	8	10
Greenslade, John Wills	Ohio	May 20, 1895	8	10
Hatch, Charles Byron, jr	Illinois	Sept. 6, 1895	5	17
Helm, Frank Pinckney, jr	Kentucky	May 20, 1895	8	10
Horne, Frederick Joseph	New York	May 20, 1895	8	10
Hunt, Walter Merrill	Maine	Sept. 12, 1895	5	17
sJeffers, William Nicholson	New York	Sept. 20, 1895	2	22
Johnson, Alfred Wilkinson	At large	May 20, 1895	8	10
Kalbfus, Edward Clifford	At large	May 20, 1895	8	10
Kimberly, Victor Ashfield	Massachusetts	Sept. 6, 1895	5	17
Lackey, Henry Ellis	At large	May 20, 1895	8	10
Larimer, Edgar Brown	Kansas	Sept. 6, 1895	5	17
Lewis, John Earl	Minnesota	Sept. 6, 1895	5	17
sMadison, Zachariah Harvey	Illinois	Sept. 6, 1894	6	20
Major, Samuel Ira Monger	Kentucky	Sept. 20, 1895	5	17
Mathews, James Edward	Illinois	May 20, 1895	8	10
Miller, William Siebel	Texas	Sept. 20, 1895	5	17
Morgan, Charles Elmer	West Virginia	Sept. 6, 1895	5	17
Morrison, Farmer	Arkansas	Sept. 6, 1895	5	17
Pope, Ralph Elton	Nebraska	May 20, 1895	8	10
Royall, Hilary Herbert	Alabama	May 20, 1895	8	10
Sadler, Everit Jay	Kansas	Sept. 20, 1895	5	17
Sayles, William Randall	Rhode Island	May 20, 1895	8	10
Shackford, Chauncey	New Jersey	Sept. 6, 1895	5	17
Shapley, Lloyd Stowell	Missouri	May 30, 1895	8	10
Sparrow, Herbert George	Ohio	Sept. 6, 1895	5	17
Taussig, Joseph Knefler	At large	June 5, 1895	8	10
Thomas, Samuel Brown	At large	May 31, 1895	8	10
Tomb, James Harvey	Missouri	Sept. 6, 1895	4	6
Vincent, Roe Willis	Pennsylvania	Sept. 6, 1895	5	17

sGilmer—Granted sick leave from February 16 to May 28, 1897.
 sMadison—Granted sick leave from January 2 to May 28, 1897.
 sJeffers—Granted sick leave from June 5 to September 30, 1897.

Transferred from next preceding class.

Naval Cadets of the Second Class—55 members—Continued.

Name.	State from which appointed.	Date of admission.	Sea service in practice ships.	
			Months.	Days.
Watson, Adolphus Eugene.....	At large	May 30, 1895	8	10
Weichert, Ernest Augustus.....	Connecticut	Sept. 6, 1895	5	17
West, Arthur Stuart.....	Georgia.....	May 20, 1895	8	10
White, Richard Drace.....	Missouri.....	May 20, 1895	8	10
Wood, Welborn Cicero.....	Georgia.....	Sept. 6, 1895	5	17
Woodward, Clark Howell.....	Georgia.....	Sept. 6, 1895	5	17
¹ Yates, Alexander Fred Hammond	Maine.....	May 20, 1895	8	10

¹ NOTE.—Change in name authorized by Navy Department April 15, 1897.

Naval Cadets of the Third Class—71 members.

Name.	State from which appointed.	Date of admission.	Sea service in practice ships.	
			Months.	Days.
Abernathy, Robert Andrew	Tennessee	Sept. 5, 1896	2	25
Arnold, Clarence Lamont	Indiana	Sept. 5, 1896	2	25
Barthalow, Benjamin Grady	Ohio	Sept. 5, 1896	2	25
Berrien, Frank Dunn	Iowa	Sept. 5, 1896	2	25
Berry, Robert Lawrence	Kentucky	May 20, 1896	2	25
Boardman, William Henry	Massachusetts	Sept. 5, 1896	2	25
Bricker, William Franklin	Pennsylvania	Sept. 19, 1896	2	25
Bryant, Samuel Wood	Pennsylvania	Sept. 5, 1896	2	25
Bulmer, Bayard Taylor	Nevada, at large	Sept. 5, 1896	2	25
Caffery, John Murphy	Louisiana	Sept. 5, 1896	2	25
Cage, Harry Kimball	Texas	May 20, 1896	2	25
Case, William Stanhope	Illinois	Sept. 6, 1895	5	17
Church, John Gaylord	Ohio	May 20, 1896	2	25
Cocke, Herbert Claiborne	Virginia	May 20, 1896	8	10
Comfort, James Hall	Missouri	May 20, 1896	2	25
Cresap, Edward Otho	Florida	May 20, 1896	8	10
sCrittenden, Kirby Barnes	Missouri	Sept. 5, 1896	2	25
Defrees, Joseph Rollie	Illinois	May 20, 1896	2	25
Dodd, Edwin Horace	Illinois	Sept. 5, 1896	2	25
Doyle, Stafford Henry Rahall	South Carolina	May 20, 1896	5	17
Ellis, Hayne	Georgia	Sept. 5, 1896	2	25
Enbody, Josiah Waterhouse	Pennsylvania	Sept. 5, 1896	2	25
Ferguson, William Burden, jr	North Carolina	May 20, 1896	2	25
Foley, Paul	New York	Sept. 5, 1896	2	25
Freeman, Charles Seymour	Pennsylvania	Sept. 5, 1896	2	25
Gannon, Sinclair	Texas	June 3, 1896	2	25
Gardiner, Carlos Alfonso	Illinois	May 20, 1896	2	25
Hellweg, Julius Frederick	Maryland	Sept. 5, 1896	2	25
Howard, Abram Claude	Illinois	Sept. 5, 1896	2	25
Huff, Charles Peabody	Missouri	Sept. 5, 1896	2	25
Hulick, Clive Kelsey	Ohio	Sept. 5, 1896	2	25
Hyland, John Joseph	Massachusetts	Sept. 19, 1896	2	25
Jackson, Edward Sharpless, jr.	Pennsylvania	May 22, 1896	2	25
James, John Frederick	Virginia	Sept. 5, 1896	2	25
Johnston, Huntington	Oregon	Sept. 19, 1896	2	25
Kear, Carleton Romig	Ohio	May 20, 1896	2	25
Keating, Arthur Barnes	Maryland	Sept. 19, 1896	2	25
¹ Kress, James Chatham	Pennsylvania	May 20, 1897	0	0
Landenberger, George Bertram	Pennsylvania	May 20, 1896	2	25
Landram, Clarence Elmer	Kentucky	Sept. 5, 1896	2	25
McEntee, William	Minnesota	May 20, 1896	2	25
Mann, John Ferris	New York	Sept. 5, 1896	2	25
¹ Mannix, Daniel Pratt	At large	May 20, 1897	0	0
Menner, Robert Tryon	Pennsylvania	Sept. 5, 1896	2	25
Mitchell, Willis Gemmill	Pennsylvania	Sept. 5, 1896	2	25
Morris, Robert	Utah, at large	Sept. 5, 1896	2	25
Naile, Frederick Raymonde	Pennsylvania	Sept. 5, 1896	2	25
Noa, Loveman	Tennessee	Sept. 5, 1896	2	25
Osterhaus, Hugo Wilson	Virginia	May 20, 1896	2	25

^s Granted sick leave from June 4 to Sept. 30, 1897.

¹ NOTE.—Advanced from Fourth Class, by authority of Navy Department, after examination.

Naval Cadets of the Third Class—71 members—Continued.

Name.	State from which appointed.	Date of admission.	Sea service in practice ships.	
			Months.	Days.
Riddle, William King.....	Tennessee.....	Sept. 5, 1896	2	25
Roosevelt, Henry Latrobe.....	New York.....	July 6, 1896	2	25
Schoenfeld, John William.....	New York.....	July 6, 1896	2	25
Scranton, Edison Ernest.....	Ohio.....	May 20, 1896	2	25
Shea, William Henry.....	New York.....	May 20, 1896	2	25
Smith, Wilbert.....	Michigan.....	July 6, 1896	2	25
Snyder, Charles Philip.....	West Virginia.....	May 20, 1896	2	25
Spilman, John Armistead.....	Virginia.....	May 20, 1896	2	25
Steele, George Washington, jr.....	Indiana.....	June 3, 1896	2	25
Svarz, Emil Pravoslav.....	Texas.....	May 20, 1896	2	25
Tamura, Hiroaki.....	Empire of Japan.....	May 25, 1896	2	25
Timmons, John Wesley.....	Ohio.....	June 3, 1896	2	25
Tomb, William Victor.....	Arkansas.....	Sept. 5, 1896	2	25
Train, Charles Russell.....	New York.....	Sept. 5, 1896	2	25
Wade, Charles Tobias.....	New Jersey.....	Sept. 5, 1896	2	25
Wainwright, John Drayton.....	Delaware, at large.....	Sept. 19, 1896	2	25
Winston, Hollis Taylor.....	North Carolina.....	Sept. 5, 1896	2	25
Wood, Robert Thompson.....	New York.....	Sept. 5, 1896	2	25
Woods, Stanley.....	Illinois.....	May 20, 1896	2	25
Wortman, Ward Kenneth.....	Montana, at large.....	Sept. 5, 1896	2	25
Wright, Luke Edward, jr.....	Tennessee.....	Sept. 5, 1896	2	25
Wyman, Henry Lake.....	Illinois.....	Sept. 6, 1895	5	17

^s Granted sick leave from February 1 to May 28, 1897; transferred from next preceding class.

Naval Cadets of the Fourth Class—94 members.

Name.	State from which appointed	Date of admission.	Age at date of admission.		Sea service in practice ships.	
			Years.	Months.	Months.	Days.
Ackerson, James Lee	Michigan	May 20, 1897	15	9	0	0
Allen, Burrell Clinton	Kansas	Sept. 7, 1897	16	0	0	0
Allen, William Henry	South Carolina	May 20, 1897	18	10	0	0
Alsop, Kelley Doyle	Mississippi	Sept. 10, 1897	17	2	0	0
Andrews, Adolphus	Texas	Sept. 7, 1897	17	11	0	0
Babcock, John Vincent	Iowa	Sept. 10, 1897	17	1	0	0
Bass, Ivan Ernest	Mississippi	May 20, 1897	19	9	0	0
Bertholf, Wallace	New Jersey	Sept. 22, 1897	16	8	0	0
Blair, George Fred	Michigan	Sept. 8, 1897	17	1	0	0
Bowne, William Rainear	Pennsylvania	Sept. 20, 1897	19	3	0	0
Brooks, Ernest Acton	Tennessee	Sept. 6, 1897	15	4	0	0
Brooks, Leroy, jr.	Ohio	Sept. 7, 1897	16	1	0	0
Brown, George Patton	California	Sept. 10, 1897	15	11	0	0
Browne, Claude	Alabama	Sept. 11, 1897	18	6	0	0
Bruff, Charles Lawrence	New York	May 20, 1897	16	9	0	0
Burwell, John Townsend	Virginia	May 20, 1897	17	10	0	0
Castle, Guy Wilkinson Stuart	Wisconsin	May 20, 1897	17	3	0	0
Cleveland, Thomas Jefferson	Alabama	May 20, 1897	16	8	0	0
Colvocoresses, Harold	New Jersey	May 20, 1897	16	8	0	0
Conway, Clarence Arthur	Michigan	Sept. 10, 1897	16	6	0	0
Cook, Harold Earle	Massachusetts	May 20, 1897	17	1	0	0
Cook, Merlyn Grail	Kansas	Sept. 10, 1897	15	4	0	0
Cooper, Oscar Fleet	North Carolina	Sept. 8, 1897	19	2	0	0
Cox, Lewis Smith, jr.	New Jersey	Sept. 20, 1897	17	6	0	0
Downes, John, jr.	At large	Sept. 8, 1897	17	9	0	0
Enochs, John Matt	Mississippi	Sept. 23, 1897	19	5	0	0
Fairfield, Arthur Philip	Maine	Sept. 8, 1897	19	10	0	0
Fisher, Charles Willis, jr.	Maryland	Oct. 1, 1897	16	10	0	0
Fitzpatrick, John James	Louisiana	Sept. 8, 1897	17	7	0	0
Fogarty, William Bailey	Ohio	Sept. 20, 1897	16	8	0	0
Footo, Percy Wright	North Carolina	May 20, 1897	17	9	0	0
Fowler, Orie Walter	Iowa	May 20, 1897	18	10	0	0
Fremont, John Charles, jr.	New York	May 20, 1897	17	2	0	0
Furer, Julius Augustus	Wisconsin	Sept. 10, 1897	16	10	0	0
Furse, John Houseal	Georgia	May 20, 1897	17	1	0	0
Galbraith, William Winton	Tennessee	May 20, 1897	19	3	0	0
Gay, Jesse Bishop	South Dakota, at large	Sept. 9, 1897	16	6	0	0
Gillmore, John David	Iowa	Sept. 23, 1897	19	7	0	0
Goodrich, Caspar	Connecticut	Sept. 7, 1897	16	4	0	0
Green, John Franklin	North Carolina	Sept. 7, 1897	18	11	0	0
Green, Marshall Brooke	Virginia	Sept. 13, 1897	16	11	0	0
Hamner, Edward Chambers, jr.	Virginia	Sept. 9, 1897	17	2	0	0
Hannigan, John Joseph	Illinois	Sept. 9, 1897	19	9	0	0
Hastings, Russell	Ohio	Sept. 9, 1897	19	10	0	0
Henry, Sidney Morgan	New York	Sept. 6, 1897	18	9	0	0
Hileman, Joseph Leonard	Virginia	Sept. 10, 1897	18	11	0	0
Howe, Alfred Graham	Indiana	May 20, 1897	18	11	0	0
Hutchins, Charles Thomas, jr.	Pennsylvania	Sept. 20, 1897	17	2	0	0
Jackson, John Parker	New Jersey	Sept. 7, 1897	19	3	0	0
Kerrick, Charles Sylvanus	California	Sept. 11, 1897	17	3	0	0
Keyes, Raymond Stedman	Ohio	Sept. 10, 1897	19	3	0	0

Naval Cadets of the Fourth Class—94 members—Continued.

Name.	State from which appointed.	Date of admission.	Age at date of admission.		Sea service in practice ships.	
			Years.	Months.	Months.	Days.
King, Ernest Joseph.....	Ohio.....	Sept. 6, 1897	18	9	0	0
Kittinger, Theodore Albert.....	Indiana.....	May 20, 1897	18	8	0	0
Kurtz, Thomas Richardson.....	Minnesota.....	Sept. 6, 1897	15	10	0	0
Lawrason, George Carson.....	Louisiana.....	May 20, 1897	17	6	0	0
Lindsay, Joseph Sanders.....	Kentucky.....	Sept. 8, 1897	19	11	0	0
Lloyd, Howard Merriam.....	Illinois.....	Sept. 10, 1897	17	6	0	0
Long, Byron Andrew.....	California.....	Sept. 10, 1897	17	4	0	0
McBride, Lewis Bowen.....	Pennsylvania.....	Sept. 6, 1897	16	11	0	0
McCommon, Frank.....	Missouri.....	Sept. 21, 1897	19	3	0	0
McCrary, Frank Robert.....	Arkansas.....	Sept. 11, 1897	17	11	0	0
Manley, Rufus Sumner.....	Kansas.....	Sept. 7, 1897	18	11	0	0
s Miles, Harold Bancroft.....	Wyoming, at large.....	May 20, 1896	19	11	2	25
Moore, Langdon.....	New York.....	Sept. 17, 1897	18	8	0	0
Nauman, Arthur Leroy.....	Michigan.....	Sept. 11, 1897	19	9	0	0
Neal, George Franklin.....	Tennessee.....	May 20, 1897	18	0	0	0
Nightingale, Garrard Post.....	New York.....	May 20, 1897	16	1	0	0
Norris, William.....	Pennsylvania.....	Sept. 7, 1897	17	8	0	0
Oakley, Owen Horace.....	Nebraska.....	May 20, 1897	18	9	0	0
Oliver, Frederick Lansing.....	North Carolina.....	Sept. 8, 1897	18	3	0	9
Perry, Newman Kershaw, jr.....	South Carolina.....	Sept. 9, 1897	16	9	0	0
Price, Samuel Robert.....	Missouri.....	Sept. 10, 1897	19	6	0	0
Pye, William Satterlee.....	Minnesota.....	May 20, 1897	16	11	0	0
s Rhea, Robert Yancey.....	Kentucky.....	May 20, 1896	16	11	2	25
Rich, Albert Thurston.....	Massachusetts.....	June 5, 1897	18	9	0	0
Richardson, Holden Chester.....	Pennsylvania.....	Sept. 8, 1897	18	9	0	0
Robertson, William Malcolm.....	Mississippi.....	May 20, 1897	16	3	0	0
Rodgers, John.....	At large.....	Sept. 7, 1897	16	7	0	0
Simons, Manley Hale.....	Rhode Island.....	May 20, 1897	18	0	0	0
Spafford, Edward Elwell.....	Vermont.....	Sept. 9, 1897	19	5	0	0
Steinhagen, William Henry.....	Indiana.....	Sept. 6, 1897	17	11	0	0
Tone, Bernard Leslie.....	New York.....	May 25, 1897	19	3	0	0
Vernou, Walter Newhall.....	Michigan.....	Sept. 20, 1897	19	7	0	0
Walsh, John Henry.....	Washington, at large.....	Sept. 10, 1897	17	9	0	0
Weaver, David Allen.....	Georgia.....	Sept. 11, 1897	17	11	0	0
Westervelt, George Conrad.....	Texas.....	May 20, 1897	17	4	0	0
Wheeler, Thomas Harrison.....	Alabama.....	May 20, 1897	16	2	0	0
Whitlock, Guy.....	Minnesota.....	May 20, 1897	18	0	0	0
Whitney, Edward Livingston.....	Louisiana.....	May 20, 1897	19	2	0	0
Williams, Roger.....	New York.....	May 20, 1897	17	6	0	0
Woodson, Pickens Evans.....	Texas.....	May 20, 1897	17	5	0	0
Wygant, Benyaard Bourne.....	Florida.....	Sept. 20, 1897	16	8	0	0
Yates, Isaac Irving.....	New York.....	May 20, 1897	16	1	0	0
Zogbaum, Rufus Fairchild, jr.....	New York.....	May 20, 1897	17	11	0	0

s Miles, granted sick leave from December 11, 1896, to May 29, 1897. } Transferred from next
s Rhea, granted sick leave from January 13 to May 28, 1897. } preceding class.

Summary of Cadets at the United States Naval Academy, October, 1897.

First class—	Members.
Line Division.....	28
Engineer Division.....	11
	<hr/> 39
Second class.....	55
Third class.....	71
Fourth class.....	94
	<hr/> 259
Pursuing post-graduate course, naval construction:	
Members of class appointed in 1893—	
W. G. DuBose, E. F. Eggert, J. W. Powell.....	3
	<hr/>
Total.....	262

RELATIVE STANDING OF NAVAL CADETS FOR 1896-'97.

Classes of the Naval Cadets, at the United States Naval Academy, at the close of the Academic Year 1896-'97; with the relative standing of the members in each class, as determined at the Annual Examination, June, 1897.

P Physically disqualified for the naval service.

R Resigned after successfully completing the four years' course.

* Received 85 per cent of the multiple.

† Found deficient, allowed a reëxamination, passed, and continued with class.

§ Found deficient, and recommended to be dropped.

¶ Retained in next lower class.

a Absent from examination.

d Dismissed.

e Selected for Engineer Division.

f Deficient; continued with class.

m Deficient; recommended for reëxamination; resigned.

n Deficient; recommended for reëxamination; sick and absent.

r Resigned.

s Sick.

w Found deficient, warned.

Relative standing of the Naval Cadets of the First Class—

Order of annual merit.	Name.	State from which appointed.	Date of admission.	Age at date of admission.	
				Years.	Months.
34	Asserson, William Christian.....	New York	Sept. 25, 1893	18	0
23	Boyd, David French, jr.....	Alabama	May 19, 1893	16	8
19	Chase, Gilbert.....	Virginia	Sept. 6, 1893	19	11
* 1	Du Bose, William Gunnell.....	Georgia	Sept. 6, 1893	16	11
22	Duncan, Oscar Dibble.....	Alabama	Sept. 6, 1893	19	1
* 2	Eggert, Ernest Frederick.....	Michigan	Sept. 6, 1893	17	3
12	Falconer, Walter Maxwell.....	Ohio	Sept. 6, 1893	17	8
22	Giles, William Pinkney.....	Texas	May 20, 1893	18	1
19	Graeme, Joseph Wright.....	Pennsylvania	Sept. 6, 1893	18	0
7	Hart, Thomas Charles.....	Michigan.....	May 19, 1893	15	11
28	Henderson, Robert William.....	Ohio	Sept. 22, 1893	16	5
* 6	Hepburn, Arthur Japy.....	Pennsylvania.....	Sept. 22, 1893	15	11
21	Holman, Frederic Ralph.....	Iowa	May 19, 1893	19	2
25	Houston, Victor Stuart.....	South Dakota.....	Sept. 22, 1893	17	2
10	Jones, Needham Lee.....	Mississippi.....	Sept. 6, 1893	18	9
33	Kautz, Austin.....	Washington	May 19, 1893	19	8
35	Kempff, Clarence Selby.....	California	May 19, 1893	18	11
36	Landis, Irwin Franklin.....	Kansas	Sept. 6, 1893	18	2
18	McCarthy, Albert Henry.....	Iowa	Sept. 6, 1893	17	8
27	McDowell, Willis.....	Pennsylvania.....	May 19, 1893	18	3
30	Magill, Samuel George, jr.....	North Dakota.....	May 19, 1893	17	9
17	Miller, Cyrus Robinson.....	California.....	Sept. 6, 1893	18	11
11	Murfin, Orin Gould.....	Ohio	Sept. 6, 1893	17	4
14	Overstreet, Luther Martin.....	Nebraska	Sept. 6, 1893	19	10
37	Owen, Alfred Crosby.....	District of Columbia.....	Sept. 6, 1893	18	0
30	Owen, Charles Truesdale.....	Pennsylvania.....	Sept. 6, 1893	15	3
* 5	Perrill, Harlan Page.....	Indiana	Sept. 6, 1893	18	9
* 3	Powell, Joseph Wright.....	New York	May 19, 1893	16	3
15	Pressey, Alfred Warren.....	Nebraska	May 19, 1893	19	11
8	Reynolds, William Herbert.....	Georgia	Sept. 6, 1893	19	4
13	Sargent, Leonard Rundlett.....	Minnesota	Sept. 6, 1893	17	1
16	Sexton, Walton Roswell.....	Illinois	May 19, 1893	16	8
24	Smith, Arthur St. Clair, jr.....	Iowa	Sept. 6, 1893	19	8
9	Theleen, David Elias.....	Wisconsin	Sept. 6, 1893	17	10
26	White, William Russell.....	Arizona	Sept. 6, 1893	17	3
29	Williams, Hilary.....	Indiana	Sept. 6, 1893	18	3
* 4	Yarnell, Harry Ervin.....	Iowa	Sept. 6, 1893	17	10

Line Division—37 members—Annual Examination, June, 1897

Order of merit in—											Sea serv- ice in prac- tice ships.			
Seamanship, naval construc- tion, and naval tactics.	Seamanship, practice cruise.	Ordnance and gunnery.	Navigation and compass devi- ation.	Navigation, practice cruise.	Least squares and applied me- chanics.	Physics.	International law.	Physiology and hygiene.	Efficiency.	Conduct.	Number of demerits.	Months.	Days.	Order of annual merit.
33	22	37	32	6	32	36	35	23	31	24	51	6	0	34
13	13	14	19	34	19	22	27	24	13	37	149	8	26	23
18	20	28	28	28	34	17	30	5	24	15	30	5	29	19
3	1	2	1	2	2	2	1	2	1	2	6	6	13	*1
26	31	23	21	19	25	18	37	27	22	12	27	5	28	22
1	6	1	2	8	1	1	2	3	18	4	12	5	28	*2
6	7	11	7	14	8	8	26	8	5	34	111	5	15	12
35	32	35	34	30	37	35	28	33	29	1	0	8	27	32
19	10	26	28	19	28	24	8	14	16	28	62	5	29	19
7	17	4	11	25	5	7	2	4	26	32	89	8	27	7
27	21	33	25	21	27	26	16	15	21	29	63	6	0	23
2	3	7	10	17	3	3	5	9	5	15	30	6	0	*6
17	25	24	20	30	29	22	18	19	26	22	45	8	27	21
31	27	21	26	16	22	29	21	29	16	23	48	6	13	25
11	22	7	16	14	15	15	4	9	9	11	26	5	28	10
36	29	30	35	32	30	25	20	27	33	27	59	8	25	33
32	24	36	37	21	36	34	35	37	28	25	55	8	27	35
36	35	34	36	36	31	37	31	20	36	19	42	5	29	36
22	4	27	31	29	24	29	17	12	4	10	25	6	0	18
23	19	30	23	27	35	27	33	36	22	13	28	8	26	27
29	34	19	18	26	23	31	28	26	35	35	126	8	26	30
28	8	25	14	21	12	11	21	15	7	26	57	5	28	17
9	10	14	15	10	10	14	10	18	9	7	19	5	29	11
15	15	12	13	11	16	10	23	31	15	6	15	6	13	14
30	36	29	27	8	32	32	34	35	34	36	130	5	29	37
23	37	20	30	37	21	19	25	34	37	31	77	5	27	30
8	17	5	3	3	7	5	7	1	9	8	21	6	0	*5
5	1	5	4	1	4	6	8	11	2	4	12	8	26	*3
20	26	16	6	6	9	4	13	17	20	18	38	9	10	15
10	9	10	9	24	11	16	13	21	7	13	28	6	0	8
12	13	13	17	18	17	11	6	21	9	2	6	5	28	13
16	10	17	11	11	18	20	18	32	13	21	43	8	27	16
25	30	18	21	35	26	28	23	24	29	15	30	5	29	24
14	15	9	8	4	14	11	12	7	18	19	42	5	29	9
33	33	21	23	13	13	20	11	6	32	33	90	5	28	26
21	27	30	33	33	20	32	31	30	24	30	66	6	0	29
3	5	3	5	4	6	8	13	12	3	9	23	6	0	*4

Relative standing of the Naval Cadets of the First Class—

Order of annual merit.	Name.	State.	Date of admission.	Age at date of admission.	
				Years.	Months.
2	Collins, Henry Lafayette.....	Pennsylvania	Sept. 6, 1893	16	9
7	Graham, Andrew Thomas.....	Illinois	Sept. 6, 1893	19	0
6	Jenson, Henry Norman.....	Wisconsin	Sept. 6, 1893	17	7
9	Keenan, Ernest Clinton.....	New York	Sept. 6, 1893	17	8
5	Leahy, William Daniel.....	Wisconsin	May 19, 1893	18	0
1	Mahony, Daniel Sullivan.....	Michigan	Sept. 6, 1893	19	8
4	Pratt, Peter Lloyd.....	Illinois	May 19, 1893	18	5
3	Richardson, Louis Clark.....	South Carolina	Sept. 6, 1893	18	10
8	Sheffield, Fletcher Lamar.....	Georgia	Sept. 6, 1893	17	6
10	Van Orden, George.....	Michigan	May 19, 1893	15	1
8	Webber, George.....	Arkansas	Sept. 6, 1893	13	4

s Granted sick leave, February 13 to May 28; assigned to next lower class.

Engineer Division—11 members—Annual Examination, June, 1897.

Sea service in practice ships.		Order of merit in—											Number of demerits.	Order of annual merit.
Months.	Days.	Naval construction.	Designing machinery.	Marine engines.	Boilers.	Experimental engineering.	Practice cruise.	Least squares and applied mechanics.	Physics.	Physiology and hygiene.	Efficiency.	Conduct.		
5	23	2	3	2	2	2	4	2	1	2	1	6	34	2
5	26	6	4	7	8	7	6	9	6	10	5	2	9	7
5	27	5	6	8	9	5	5	6	8	6	2	3	17	6
5	28	8	9	9	9	7	5	11	5	7	9	10	8	9
8	23	3	7	5	6	4	7	4	3	5	7	9	52	5
5	28	1	1	1	1	1	8	3	2	3	4	4	27	1
8	24	9	2	4	4	8	3	8	10	4	6	5	30	4
5	27	7	4	3	3	3	10	7	9	1	8	1	0	3
5	28						1						6	(s)
8	23	10	10	10	10	8	9	1	4	7	9	10	120	10
5	27	4	8	6	5	10	2	10	5	8	2	7	44	8

Relative standing of the Naval Cadets of the Second

Order of annual merit.	Name.	State from which appointed.	Date of admission.
27	Abele, Clarence Arthur	Massachusetts	Sept. 6, 1894
29	Babcock, John Franklin	New York	Sept. 22, 1894
15	Boone, Charles	Ohio	Sept. 6, 1894
8	Briggs, Wilbur Gerheart	New York	Sept. 6, 1894
20	Briggs, Zeno Everett	Nebraska	Sept. 22, 1894
†	Brown, Morris Hamilton	Indiana	May 19, 1894
26	Constien, Edward Theodore	Pennsylvania	May 19, 1894
9	Cotten, Lyman Atkinson	North Carolina	Sept. 6, 1894
18	Cronan, William Pigott	Connecticut	Sept. 6, 1894
10	Dinger, Henry Charles	Wisconsin	May 19, 1894
7	Elson, Herman Jacob	Mississippi	May 19, 1894
28	Evans, Franck Taylor	At large	Sept. 6, 1894
23	Faller, Guy William	Wisconsin	May 19, 1894
s†	Gilmer, James Blair	Virginia	May 19, 1894
36	Graham, John Sisson	Colorado	May 19, 1894
*2	Halligan, John, jr	Massachusetts	Sept. 6, 1894
17	Hand, James Alexander, jr	South Dakota	Sept. 6, 1894
†	Hanrahan, David Carlisle	Wisconsin	May 19, 1894
30	Johnson, Thomas Lee	Kansas	May 19, 1894
13	McIntyre, Edward William	California	Sept. 6, 1894
12	Macy, Ulysses Samuel	Missouri	Sept. 6, 1894
s†	Madison, Zachariah Harvey	Illinois	Sept. 6, 1894
6	Marble, Ralph Norris, jr	Minnesota	May 19, 1894
11	Mitchell, Alexander Neely	Ohio	Sept. 6, 1894
25	Nelson, Charles Preston	Massachusetts	May 19, 1894
33	Pettengill, George Tilford	Idaho, at large	Sept. 22, 1894
16	Pinney, Frank Lucius	Connecticut	Sept. 6, 1894
34	Roper, Walter Gordon	Georgia	Sept. 22, 1894
31	Schofield, John Anderson	Missouri	Sept. 6, 1894
24	Shane, Louis	Nebraska	Sept. 6, 1894
*3	Smith, George Leonard	New Hampshire	Sept. 6, 1894
25	Sweet, George Cook	New York	Sept. 22, 1894
19	Tardy, Walter Benjamin	Arkansas	May 19, 1894
22	Tarrant, William Theodore	Texas	Sept. 6, 1894
*4	Watts, William Carleton	Pennsylvania	Sept. 22, 1894
21	Wells, William Benefiel	Iowa	May 19, 1894
*1	Williams, Henry	Maryland	Sept. 6, 1894
32	Williams, Yancey Sullivan	South Carolina	Sept. 6, 1894
14	Woods, Edward	Massachusetts	May 19, 1894
5	Wright, Henry Tutwiler	Alabama	Sept. 6, 1894

Class—40 members—Annual Examination, June, 1897.

Age at date of admission.		Order of merit in—												Order of annual merit.
Years.	Months.	Seamanship.	Astronomy.	Principles of mechanism and marine engines.	Practice cruise.	Calculus and mechanics.	Physics and chemistry.	French.	Mechanical drawing.	History.	Efficiency.	Conduct.	Number of demerits.	
17	10	25	21	31	27	28	33	33	12	29	30	15	44	27
15	0	26	27	27	23	24	25	28	32	37	18	35	122	29
17	11	6	11	16	21	14	19	11	21	21	11	20	60	15
18	7	16	12	7	22	7	8	29	23	9	7	18	51	8
17	11	30	18	20	20	20	25	37	5	6	24	18	51	20
17	6	28	30	33	12	38	36	17	35	15	28	30	96	†
18	6	37	36	19	35	27	30	34	27	28	24	2	14	23
19	8	18	13	16	26	8	5	23	14	20	18	3	15	9
15	7	1	13	22	12	20	28	7	6	16	6	21	61	18
18	2	11	17	6	9	6	8	18	22	34	35	22	65	10
18	4	19	1	5	1	18	10	9	3	5	12	14	36	7
18	11	14	25	38	16	34	35	4	30	16	16	13	35	28
16	1	35	34	14	37	15	21	20	17	32	36	24	70	23
18	2				32				28				18	s ¶
19	1	31	38	36	24	32	34	32	36	23	20	27	76	36
18	3	6	4	4	1	3	2	5	11	3	1	3	15	*2
18	11	10	7	18	18	13	7	8	20	7	24	37	152	17
18	9	14	33	29	25	37	36	36	30	36	12	28	90	†
19	1	24	32	35	28	32	30	25	13	11	32	31	102	30
17	6	17	9	23	18	12	14	13	25	10	24	8	26	13
17	8	12	16	15	12	11	12	25	8	27	22	26	72	12
17	8				36				38				81	s ¶
15	2	9	8	11	15	5	6	16	7	25	14	10	34	6
18	11	34	27	7	6	16	13	22	1	13	15	16	48	11
17	3	23	37	36	16	34	35	27	16	29	4	34	117	25
16	10	20	26	32	30	28	27	14	24	12	33	36	150	33
19	9	22	15	20	10	20	16	21	4	22	5	9	31	16
18	11	32	34	34	33	20	29	38	34	35	31	29	94	34
18	6	38	27	10	40	25	22	29	32	37	38	33	108	31
17	4	27	19	27	38	10	17	2	29	25	37	38	153	24
18	0	4	2	1	10	2	3	12	2	18	3	10	34	*3
17	3	21	31	11	29	25	24	15	9	31	21	32	103	25
18	11	5	10	23	4	28	15	23	40	19	2	22	66	19
16	1	36	22	23	34	36	20	10	18	2	23	5	22	22
15	8	8	5	3	3	4	4	5	10	3	10	16	48	*4
17	4	33	24	26	31	17	17	31	37	23	33	7	24	21
17	0	12	6	2	6	1	1	18	15	13	16	6	23	*1
18	4	29	19	30	39	28	32	35	39	24	28	24	69	32
18	6	3	22	11	8	19	22	3	19	8	8	10	33	14
19	8	2	3	9	4	8	11	1	25	1	8	1	10	5

Relative standing of the Naval Cadets of the Third

Order of annual merit.	Name.	State from which appointed.	Date of admission.
8	Bailey, John Eliot	Michigan	May 20, 1895
12	Beckner, John Taliaferro	Kentucky	May 20, 1895
3	Bissell, Henry Harrison	New York	May 30, 1895
* 2	Bisset, Guy Aloysius	Kentucky	Sept. 6, 1895
18	Bloch, Claude Charles	Kentucky	Sept. 6, 1895
45	Bowers, John Treadwell	New Jersey	Sept. 6, 1895
51	Branch, Frank Oak	Indiana	Sept. 6, 1895
38	Brinser, Harry Lerch	Pennsylvania	Sept. 6, 1895
* 3	Buchanan, Allen	Indiana	Sept. 6, 1895
28	Clement, James Wilkinson Legare, jr	South Carolina	Sept. 27, 1895
16	Cole, Cyrus Willard	Ohio	Sept. 6, 1895
26	Combs, James Rockwell	Illinois	Sept. 6, 1895
39	Courtney, Charles Edward	New York	May 20, 1895
13	Dungan, Paul Baxter	Nebraska	Sept. 6, 1895
47	Evans, Herbert Heard	Mississippi	Sept. 6, 1895
* 4	Fenner, Edward Blaine	New York	May 20, 1895
33	Fischer, Charles Hermann	Pennsylvania	Sept. 6, 1895
50	Forman, Charles William	Illinois	Sept. 6, 1895
7	Gleason, Henry Miller	Kansas	May 20, 1895
36	Greenslade, John Wills	Ohio	May 20, 1895
52	Hatch, Charles Byron, jr	Illinois	Sept. 6, 1895
49	Helm, Frank Pinckney, jr	Kentucky	May 20, 1895
26	Horne, Frederick Joseph	New York	May 20, 1895
46	Hunt, Walter Merrill	Maine	Sept. 6, 1895
21	Jeffers, William Nicholson	New York	Sept. 20, 1895
43	Johnson, Alfred Wilkinson	At large	May 20, 1895
23	Kalbfus, Edward Clifford	At large	May 20, 1895
9	Kimberly, Victor Ashfield	Massachusetts	Sept. 6, 1895
17	Lackey, Henry Ellis	At large	May 20, 1895
44	Larimer, Edgar Brown	Kansas	Sept. 6, 1895
24	Lewis, John Earl	Minnesota	Sept. 6, 1895
25	Major, Samuel Ira Monger	Kentucky	Sept. 20, 1895
29	Mathews, James Edward	Illinois	May 20, 1895
20	Miller, William Siebel	Texas	Sept. 20, 1895
22	Morgan, Charles Elmer	West Virginia	Sept. 6, 1895
34	Morrison, Farmer	Arkansas	Sept. 6, 1895
41	Pope, Ralph Elton	Nebraska	May 20, 1895
10	Royall, Hilary Herbert	Alabama	May 20, 1895
14	Sadler, Everit Jay	Kansas	Sept. 20, 1895
37	Sayles, William Randall	Rhode Island	May 20, 1895
†	Shackford, Chauncey	New Jersey	Sept. 6, 1895
42	Shapley, Lloyd Stowell	Missouri	May 30, 1895
* 1	Sparrow, Herbert George	Ohio	Sept. 6, 1895
19	Taussig, Joseph Knefler	At large	May 30, 1895
32	Thomas, Samuel Brown	At large	May 30, 1895

Class—55 members—Annual Examination, June, 1897.

Age at date of admission.		Order of merit in—								
Years.	Months.	Trigonometry, analytical geometry, and descriptive geometry.	Physics and chemistry.	English and law.	French and Spanish.	Mechanical drawing.	Efficiency.	Conduct.	Number of demerits.	Order of annual merit.
17	10	5	4	10	17	28	8	39	93	8
16	8	4	9	12	20	43	27	46	118	12
19	3	54	53	30	4	54	47	48	124	5
18	1	1	1	2	3	13	42	31	71	*2
17	2	6	5	25	23	52	52	31	71	18
18	5	26	33	44	19	34	13	54	214	45
17	4	26	30	47	50	44	49	50	134	51
18	9	26	34	39	39	31	49	21	51	38
18	9	2	1	4	10	15	1	4	27	*3
17	1	38	44	21	14	31	34	18	48	28
19	3	16	28	31	27	5	27	28	64	16
19	1	52	38	22	41	1	44	34	78	26
17	11	35	30	7	33	45	24	41	104	39
18	2	12	15	14	18	12	41	44	115	13
15	5	46	11	32	34	41	53	51	145	47
18	9	8	7	3	6	6	8	12	36	*4
19	11	19	42	49	41	20	14	24	56	33
18	11	46	16	46	53	42	49	44	115	50
18	7	14	11	14	15	2	11	25	59	7
15	4	48	41	26	39	18	17	30	70	36
17	1	43	19	42	46	49	53	53	188	52
18	2	35	39	37	52	46	27	40	100	49
15	3	21	46	29	29	16	37	41	104	26
18	11	30	46	41	43	48	45	18	49	46
18	6	53	52	6	1	39	8	18	48	21
18	6	49	44	42	21	37	7	37	88	43
17	6	20	32	12	21	38	27	31	71	23
17	10	8	16	27	13	17	11	36	87	9
18	11	32	22	37	10	8	2	14	43	17
19	1	51	51	33	44	30	37	3	24	44
17	2	16	34	53	47	10	24	35	81	24
18	0	26	19	28	16	36	34	28	63	25
19	4	23	24	45	31	24	24	14	43	29
18	9	18	34	11	7	35	16	46	119	20
18	7	32	14	23	27	33	23	8	30	22
19	7	39	18	17	32	50	17	22	54	34
19	4	50	40	34	51	19	46	14	44	41
18	9	7	6	17	25	29	39	26	61	10
16	4	13	13	16	9	21	19	48	124	14
17	5	35	37	17	45	46	27	2	21	37
18	5	45	54	49	54	53	19	4	26	+
19	6	30	23	39	47	51	19	8	30	42
18	1	3	3	1	2	9	5	4	26	*1
17	9	23	25	23	36	7	6	10	32	19
17	4	34	49	47	49	14	4	12	36	32

Relative standing of the Naval Cadets of the Third Class—

Order of annual merit.	Name.	State from which appointed.	Date of admission.
35	Tomb, James Harvey	Missouri	Sept. 6, 1895
31	Vincent, Roe Willis	Pennsylvania	Sept. 6, 1895
30	Watson, Adolphus Eugene	At large	May 30, 1895
6	Weichert, Ernest Augustus	Connecticut	Sept. 6, 1895
48	West, Arthur Stuart	Georgia	May 20, 1895
5	White, Richard Drace	Missouri	May 20, 1895
11	Wood, Welborn Cicero	Georgia	Sept. 6, 1895
15	Woodward, Clark Howell	Georgia	Sept. 6, 1895
31	Wyman, Henry Lake	Illinois	Sept. 6, 1895
40	Yates, Alexander Fred Hammond	Maine	May 20, 1895

55 members—Annual Examination, June, 1897—Continued.

Age at date of admission.		Order of merit in—								
Years.	Months.	Trigonometry, analytical geometry, and descriptive geometry.	Physics and chemistry.	English and law.	French and Spanish.	Mechanical drawing.	Efficiency.	Conduct.	Number of demerits.	Order of annual merit.
19	0	21	32	35	38	26	27	43	113	35
18	4	25	29	35	26	11	47	52	146	31
16	9	42	50	54	37	3	14	26	61	30
17	11	10	19	5	5	33	27	11	33	6
16	2	43	48	49	35	39	19	38	90	48
18	1	11	10	8	8	21	2	17	46	5
19	8	15	7	9	12	35	40	1	18	11
18	6	41	27	20	23	3	34	4	26	15
16	9	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	8
16	4	39	42	52	30	26	42	22	53	40

Relative standing of the Naval Cadets of the Fourth

Order of annual merit.			
	Name.	State from which appointed.	Date of admission.
44	Abernathy, Robert Andrew.....	Tennessee.....	Sept. 5, 1896
65	Arnold, Clarence Lamont.....	Indiana.....	Sept. 5, 1896
58	Barthallow, Benjamin Grady.....	Ohio.....	Sept. 5, 1896
25	Berrien, Frank Dunn.....	Iowa.....	Sept. 5, 1896
45	Berry, Robert Lawrence.....	Kentucky.....	May 20, 1896
15	Boardman, William Henry.....	Massachusetts.....	Sept. 5, 1896
20	Bricker, William Franklin.....	Pennsylvania.....	Sept. 19, 1896
* 3	Bryant, Samuel Wood.....	Pennsylvania.....	Sept. 5, 1896
36	Bulmer, Bayard Taylor.....	Nevada, at large.....	Sept. 5, 1896
60	Caffery, John Murphy.....	Louisiana.....	Sept. 5, 1896
54	Cage, Harry Kimball.....	Texas.....	May 20, 1896
10	Case, William Stanhope.....	Illinois.....	Sept. 6, 1895
32	Church, John Gaylord.....	Ohio.....	May 20, 1893
18	Cocke, Herbert Claiborne.....	Virginia.....	May 20, 1896
43	Comfort, James Hall.....	Missouri.....	May 20, 1896
17	Cresap, Edward Otho.....	Florida.....	May 20, 1896
46	Crittenden, Kirby Barnes.....	Missouri.....	Sept. 5, 1896
30	Defrees, Joseph Rollie.....	Illinois.....	May 20, 1896
57	Dodd, Edwin Horace.....	Illinois.....	Sept. 5, 1896
9	Doyle, Stafford Henry Rahall.....	South Carolina.....	May 20, 1896
49	Ellis, Hayne.....	Georgia.....	Sept. 5, 1896
39	Enbody, Josiah Waterhouse.....	Pennsylvania.....	Sept. 5, 1896
* 1	Ferguson, William Burden, jr.....	North Carolina.....	May 20, 1896
22	Foley, Paul.....	New York.....	Sept. 5, 1896
24	Freeman, Charles Seymour.....	Pennsylvania.....	Sept. 5, 1896
14	Gannon, Sinclair.....	Texas.....	June 3, 1896
27	Gardiner, Carlos Alfonso.....	Illinois.....	May 20, 1896
34	Hellweg, Julius Frederick.....	Maryland.....	Sept. 5, 1896
37	Howard, Abram Claude.....	Illinois.....	Sept. 5, 1896
61	Huff, Charles Peabody.....	Missouri.....	Sept. 5, 1896
59	Hulick, Clive Kelsey.....	Ohio.....	Sept. 5, 1896
* 7	Hyland, John Joseph.....	Massachusetts.....	Sept. 19, 1896
* 2	Jackson, Edward Sharpless, jr.....	Pennsylvania.....	May 22, 1896
56	James, John Frederick.....	Virginia.....	Sept. 5, 1896
13	Johnston, Huntington.....	Oregon.....	Sept. 19, 1896
29	Kear, Carleton Romig.....	Ohio.....	May 20, 1896
19	Keating, Arthur Barnes.....	Maryland.....	Sept. 19, 1896
64	Landenberger, George Bertram.....	Pennsylvania.....	May 20, 1896
67	Landram, Clarence Elmer.....	Kentucky.....	Sept. 5, 1896
8	McEntee, William.....	Minnesota.....	May 20, 1896
53	Mann, John Ferris.....	New York.....	Sept. 5, 1896
55	Menner, Robert Tryon.....	Pennsylvania.....	Sept. 5, 1896
51	Miles, Harold Bancroft.....	Wyoming, at large.....	May 20, 1896
15	Mitchell, Willis Gemmill.....	Pennsylvania.....	Sept. 5, 1896
42	Morris, Robert.....	Utah, at large.....	Sept. 5, 1896

Class—70 members—Annual Examination, June, 1897.

Age at date of admission.		Order of merit in—					Number of demerits.	Order of annual merit.
Years.	Months.	Algebra and geometry.	English and history.	French and Spanish.	Efficiency.	Conduct.		
16	1	51	22	53	63	34	67	44
18	0	52	65	66	54	46	105	65
18	6	54	54	59	67	49	111	58
19	0	17	18	34	43	55	130	25
15	9	52	44	43	13	23	53	45
19	10	11	46	15	15	19	46	15
17	8	24	34	19	25	3	33	20
19	3	1	20	2	2	28	60	*3
19	9	54	28	30	43	31	64	36
18	11	61	60	51	68	51	113	60
16	8	49	51	62	34	25	54	54
18	0	9	7	10	20	52	116	10
17	1	42	9	36	51	53	119	32
18	4	19	33	19	20	7	37	18
19	6	36	37	54	51	10	38	43
18	6	3	40	46	7	12	40	17
17	5	56	38	24	57	55	130	46
19	11	16	42	44	37	7	37	30
17	0	62	46	40	54	65	197	57
20	0	30	2	5	8	27	59	9
19	0	56	29	49	59	39	80	49
19	9	67	48	23	41	12	40	39
18	0	2	1	3	25	16	42	*1
18	3	27	24	21	47	39	80	22
17	9	68	5	34	30	7	37	24
19	2	21	16	25	4	3	32	14
16	7	39	23	13	47	60	132	27
17	5	47	26	30	25	17	45	34
16	5	37	38	33	65	29	63	37
19	4	50	54	60	66	63	149	61
17	1	64	66	46	60	46	104	59
18	5	9	16	4	51	5	35	*7
18	3	6	2	1	18	5	34	*2
18	6	56	50	21	39	67	265	56
18	9	26	11	26	25	20	49	13
16	2	14	48	30	47	35	74	29
17	2	28	9	37	37	23	52	19
17	1	46	58	57	41	66	216	64
16	7	63	59	65	63	68	275	67
19	0	5	14	14	9	20	48	8
19	4	64	44	41	58	62	136	53
19	11	33	63	63	43	38	79	55
19	11	(a)	(a)	(a)	(a)	-----	-----	89
18	11	12	15	37	30	26	56	15
17	9	21	56	44	47	42	94	42

Relative standing of the Naval Cadets of the Fourth Class—

Order of annual merit.			
	Name.	State from which appointed.	Date of admission.
*6	Naile, Frederick Raymonde	Pennsylvania	Sept. 5, 1896
50	Noa, Loveman	Tennessee	Sept. 5, 1896
66	Osterhaus, Hugo Wilson	Virginia	May 20, 1896
81	Rhea, Robert Yancey	Kentucky	May 20, 1896
11	Riddle, William King	Tennessee	Sept. 5, 1896
38	Roosevelt, Henry Latrobe	New York	July 6, 1896
62	Schoenfeld, John William	New York	July 6, 1896
40	Scranton, Edison Ernest	Ohio	May 20, 1896
63	Shea, William Henry	New York	May 20, 1896
21	Smith, Wilbert	Michigan	July 6, 1896
*4	Snyder, Charles Philip	West Virginia	May 20, 1896
*5	Spilman, John Armistead	Virginia	May 20, 1896
35	Steele, George Washington, jr	Indiana	June 3, 1896
47	Svarz, Emil Pravoslav	Texas	May 20, 1896
f	Tamura, Hiroaki	Empire of Japan	May 25, 1896
52	Timmons, John Wesley	Ohio	June 3, 1896
26	Tomb, William Victor	Arkansas	Sept. 5, 1896
41	Train, Charles Russell	New York	Sept. 5, 1896
33	Wade, Charles Tobias	New Jersey	Sept. 5, 1896
28	Wainwright, John Drayton	Delaware, at large	Sept. 19, 1896
31	Winston, Hollis Taylor	North Carolina	Sept. 5, 1896
23	Wood, Robert Thompson	New York	Sept. 5, 1896
48	Woods, Stanley	Illinois	May 20, 1896
51	Wortman, Ward Kenneth	Montana, at large	Sept. 5, 1896
12	Wright, Luke Edward, jr	Tennessee	Sept. 5, 1896

Members—Annual Examination, June, 1887—Continued.

Age at date of admission.		Order of merit in—					Number of demerits.	Order of annual merit.
Years.	Months.	Algebra and geometry.	English and history.	French and Spanish.	Efficiency.	Conduct.		
16	2	15	4	6	43	10	38	*6
17	11	33	36	48	60	54	126	50
16	6	47	67	67	25	44	97	66
16	11	(a)	(a)	(a)	(a)			s 4
19	8	7	21	7	18	42	94	11
16	8	56	40	16	39	48	107	38
19	11	40	51	64	54	64	187	62
19	3	42	18	55	20	36	77	40
18	9	66	61	61	34	45	103	63
19	8	28	13	29	16	41	93	21
16	10	8	5	8	3	1	21	*4
18	1	4	11	11	1	12	41	*5
16	11	60	43	18	30	12	41	35
19	1	17	61	55	20	17	44	47
17	5	21	68	68	9	1	21	f
17	10	45	63	41	4	31	65	52
18	11	37	24	26	4	31	64	26
16	11	40	57	26	13	36	77	41
16	11	24	26	49	20	29	62	33
18	2	44	34	17	9	20	49	28
18	10	13	30	39	62	60	132	31
17	4	32	32	11	34	55	130	23
18	6	30	30	52	16	55	131	48
16	7	19	53	58	30	49	111	51
19	3	35	7	9	12	55	131	12

APPOINTMENTS, RESIGNATIONS, DEATHS, ETC.

OCTOBER 3, 1896, TO OCTOBER 1, 1897.

Appointed Ensigns July 1, 1897.

Naval Cadet Brumby, Frank Hardeman.....	Class of 1895
Naval Cadet Baldwin, Frank Pardee.....	Class of 1895
Naval Cadet Davidson, William Christopher.....	Class of 1895
Naval Cadet Laning, Harris.....	Class of 1895
Naval Cadet Todd, David Wooster.....	Class of 1895
Naval Cadet Klemann, John Valentine.....	Class of 1895
Naval Cadet Cushman, William Reynolds.....	Class of 1895
Naval Cadet Butler, Henry Varnum, jr.....	Class of 1895
Naval Cadet Gherardi, Walter Rockwell.....	Class of 1895
Naval Cadet Monaghan, John Robert.....	Class of 1895
Naval Cadet Raby, James Joseph.....	Class of 1895
Naval Cadet Walker, James Erling.....	Class of 1895
Naval Cadet Standley, William Harrison.....	Class of 1895
Naval Cadet Chester, Arthur Tremaine.....	Class of 1895
Naval Cadet Barnes, Cassius Bartlett.....	Class of 1895
Naval Cadet Breckinridge, Joseph Cabell.....	Class of 1895
Naval Cadet Wadhams, Albion James.....	Class of 1895
Naval Cadet Bennett, Kenneth Marratt.....	Class of 1895
Naval Cadet Watson, Edward Howe.....	Class of 1895
Naval Cadet Bagley, Worth.....	Class of 1895
Naval Cadet Knepper, Orlo Smith.....	Class of 1895
Naval Cadet McCormack, Michael James.....	Class of 1895
Naval Cadet Johnston, Rufus Zenas, jr.....	Class of 1895

Appointed Assistant Engineers July 1, 1897.

Naval Cadet Dick, Thomas Murritt.....	Class of 1895
Naval Cadet Mallory, Charles King.....	Class of 1895
Naval Cadet Mansfield, Newton.....	Class of 1895
Naval Cadet Morton, James Proctor.....	Class of 1895
Naval Cadet Garrison, Daniel Mershon.....	Class of 1895
Naval Cadet Karns, Franklin D.....	Class of 1895
Naval Cadet Freeman, Frederic Newton.....	Class of 1895
Naval Cadet Marshall, John Francis, jr.....	Class of 1895
Naval Cadet Merritt, Darwin Robert.....	Class of 1895
Naval Cadet Eckhardt, Ernst Frederick.....	Class of 1895
Naval Cadet Dunn, Edward Howard.....	Class of 1895

Appointed Assistant Naval Constructors July 1, 1897.

Naval Cadet Smith, Stuart Farrar.....	Class of 1895
Naval Cadet Groesbeck, William Gerard.....	Class of 1895

Appointed Second Lieutenants United States Marine Corps July 1, 1897.

Naval Cadet Bannon, Philip Michael.....	Class of 1895
Naval Cadet Hall, Newt Hamill.....	Class of 1895

Resigned.

Naval Cadet Northup, Arthur W., fourth class	Oct. 7, 1896
Naval Cadet Thorpe, George C., third class	Nov. 9, 1896
Naval Cadet Sloan, James M., jr., fourth class	Dec. 22, 1896
Naval Cadet Browne, Claude, fourth class	Jan. 13, 1897
Naval Cadet Day, Charles C., fourth class	Jan. 14, 1897
Naval Cadet Brackett, William, fourth class	Jan. 20, 1897
Naval Cadet McCarty, Sterling H., third class	Jan. 21, 1897
Naval Cadet Harris, George S., fourth class	Jan. 23, 1897
Naval Cadet Pye, William S., fourth class	Jan. 28, 1897
Naval Cadet Asmus, Allston, fourth class	Jan. 28, 1897
Naval Cadet Miller, Benjamin F., fourth class	Jan. 28, 1897
Naval Cadet Clark, Arthur W., fourth class	Jan. 29, 1897
Naval Cadet Fitzpatrick, John J., fourth class	Jan. 30, 1897
Naval Cadet Brown, Josephus J., second class	Jan. 30, 1897
Naval Cadet Catron, John W., fourth class	Feb. 2, 1897
Naval Cadet Dearborn, Peyton B., fourth class	Feb. 3, 1897
Naval Cadet Draper, Arthur E., fourth class	Feb. 6, 1897
Naval Cadet Downes, John, jr., fourth class	Feb. 11, 1897
Naval Cadet Anding, Sheldon W., first class	Feb. 15, 1897
Naval Cadet Blair, George F., fourth class	Feb. 15, 1897
Naval Cadet Cox, Lewis S., jr., fourth class	Feb. 15, 1897
Naval Cadet Zogbaum, Rufus F., jr., fourth class	Feb. 15, 1897
Naval Cadet Rhue, John A., fourth class	Feb. 15, 1897
Naval Cadet Love, James M., jr., second class	Feb. 15, 1897
Naval Cadet Mannix, Daniel P., second class	Feb. 15, 1897
Naval Cadet Brockway, Benjamin L., second class	Feb. 15, 1897
Naval Cadet Huntington, Arthur F., second class	Feb. 15, 1897
Naval Cadet Buttrick, James T., third class	Feb. 15, 1897
Naval Cadet Morse, John W., first class	Feb. 15, 1897
Naval Cadet Applewhite, Scott C., second class	Feb. 15, 1897
Naval Cadet Frawley, William J., third class	Feb. 15, 1897
Naval Cadet Fowler, Orie W., fourth class	Feb. 15, 1897
Naval Cadet Foote, Percy W., fourth class	Feb. 15, 1897
Naval Cadet Vernou, Walter N., fourth class	Feb. 15, 1897
Naval Cadet O'Reilly, Philip M., fourth class	Feb. 15, 1897
Naval Cadet Thompson, Scott McG., fourth class	Feb. 15, 1897
Naval Cadet Smith, Clyde W., third class	Feb. 17, 1897
Naval Cadet Kress, James C., second class	Feb. 20, 1897
Naval Cadet Hoopes, Edward T., first class	Feb. 26, 1897
Naval Cadet Russell, Branch E., fourth class	Mar. 29, 1897
Naval Cadet Bissell, Henry H., third class	June 9, 1897
Naval Cadet Harris, George Simmons	July 22, 1897

Died.

Naval Cadet Walker, Charles H., class of 1895	Feb. 7, 1897
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Dropped.

Naval Cadet Turner, Robert F., fourth class	Feb. 15, 1897
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MERIT ROLLS FOR 1896-'97.

Merit rolls, made out annually for each class, show the proficiency of the cadets in each branch of study. The numbers given in the table, page 92, showing the relative weight of the different branches, are used as coefficients; the final mark in each branch (on a scale of 4) being multiplied by the number assigned to that branch. The sum of the products, after adding the multiple for discipline, is the final mark of the cadet for the year.

In the case of cadets that take an advanced course in any branch, the final mark in that branch is determined by adding to the final mark received in the required course one-fifth of the amount by which the final mark in the advanced course exceeds 2.50.

In the graduating merit roll, the final standing for the course is determined by the sum of the yearly marks.

"Cadets who attain 85 per cent of the multiple in any year shall be distinguished by a star affixed to their names on the merit rolls." (Regulations United States Naval Academy, par. 191.)

The diplomas of cadets whose final marks on the graduating merit roll are not less than 85 per cent of the maximum read, "passed with distinction;" those whose final marks are between 74 per cent and 85 per cent of the maximum read, "passed with credit;" and those whose final marks are between $62\frac{1}{2}$ per cent and 74 per cent of the maximum read, "passed."

P Physically disqualified for the naval service.

R Resigned after successfully completing the four years' course.

* Received 85 per cent of the multiple.

† Found deficient, allowed a reëxamination, passed, and continued with class.

‡ Found deficient, allowed a reëxamination, again deficient, and recommended to be dropped.

§ Found deficient, and recommended to be dropped.

¶ Retained in next lower class.

a Absent from examination.

d Dismissed.

e Selected for Engineer Division.

m Deficient; recommended for reëxamination; resigned.

n Deficient; recommended for reëxamination; sick and absent.

s Sick.

w Found deficient, warned.

Order of annual merit.	Name.	Assignment.											
		Seamanship and naval construction.	Ordnance and gunnery.	Navigation and surveying.	Steam machinery, engines, and boilers.	International law.	French, Spanish, and German.	Cruise reports.	Navigational notes, books, journals, and station bills.	Aggregate for final examination.	Aggregate for four years.	Final aggregate.	
	Maxima	56	44	44	20	24	28	16	8	240	760	1,000	
1	Frank H. Brumby	49.56	35.64	42.24	15.40	20.64	23.45	14.48	7.74	200.15	638.38	847.53	Ensign.
2	Frank P. Baldwin	46.76	35.20	36.63	14.50	18.78	20.30	14.40	6.80	193.37	632.68	826.05	Ensign.
3	William C. Davidson	48.30	30.80	35.97	12.80	21.24	20.30	14.40	8.00	191.81	623.70	815.51	Ensign.
4	Harris Loring	43.68	32.78	34.76	16.25	16.50	19.25	14.80	7.46	185.48	615.44	800.92	Ensign.
5	David W. Todd	45.92	37.51	27.72	14.65	19.98	21.35	13.92	6.54	187.59	584.78	772.37	Ensign.
6	John V. Klemann	46.90	37.95	30.14	15.50	19.14	25.48	13.44	6.06	194.61	575.21	769.82	Ensign.
7	William R. Cushman	43.54	32.78	32.34	13.30	16.62	20.65	13.52	6.14	178.89	588.62	767.51	Ensign.
8	Henry V. Butler, jr.	44.24	33.33	29.26	14.25	12.12	15.75	15.28	6.60	170.83	596.57	767.40	Ensign.
9	Walter R. Ghorardi	45.92	27.72	33.11	13.25	18.66	22.75	14.56	6.54	182.51	580.51	763.02	Ensign.
10	John R. Monaghan	38.78	33.22	23.21	12.75	16.20	19.60	14.08	4.40	162.24	597.78	760.02	Ensign.
11	James J. Raby	30.48	30.58	31.46	13.90	18.18	21.70	14.88	5.46	175.64	583.88	759.52	Ensign.
12	Philip M. Bannon	30.06	24.53	21.34	12.50	14.82	16.45	14.72	6.06	149.48	604.41	753.89	Second Lieutenant, U. S. M. C.
13	James E. Walker	38.36	29.26	27.17	14.15	15.12	18.90	14.72	6.80	164.48	588.96	753.44	Ensign.
14	William H. Standley	40.74	30.47	31.68	12.50	15.06	17.15	14.32	6.54	168.46	581.28	749.74	Ensign.
15	Arthur T. Chestor	42.98	20.02	25.19	12.75	8.22	13.30	14.16	5.86	142.48	601.08	743.56	Ensign.
16	Cassius B. Barnes	43.54	22.78	30.25	12.75	17.70	21.35	13.52	6.60	178.49	564.84	743.33	Ensign.
17	Joseph C. Brockbridge	45.92	31.46	27.72	13.00	19.80	23.59	13.84	6.14	181.47	561.41	742.88	Ensign.
18	Albion J. Wadhams	42.70	34.21	27.83	14.50	15.72	19.04	14.56	6.66	175.22	565.75	740.97	Ensign.
19	Kenneth M. Bennett	42.98	31.46	23.87	12.60	17.52	20.30	14.24	4.54	167.51	573.29	740.80	Ensign.
20	Edward H. Watson	42.70	29.26	27.83	13.60	20.10	23.45	15.04	7.34	176.17	562.21	738.33	Ensign.
21	Worth Bagley	41.30	29.81	25.63	13.10	17.40	20.30	15.04	3.86	168.71	566.00	734.71	Ensign.
22	Orlo S. Knopper	42.70	26.95	27.50	12.60	16.32	18.20	15.04	6.34	165.55	560.41	726.26	Ensign.
23	Michael J. McCormack	38.50	29.59	19.58	12.60	15.78	19.25	15.20	5.86	156.26	567.87	724.13	Ensign.
24	Rufus Z. Johnston, jr.	43.82	31.90	21.67	12.50	16.02	17.50	15.12	5.20	163.73	557.38	721.11	Ensign.
25	Newt H. Hall	36.82	27.06	23.32	12.50	20.22	18.20	14.56	6.00	158.68	558.89	717.48	Second Lieutenant, U. S. M. C.

Merit roll of the Graduating Class of Naval Cadets—Engineer Division—11 members—at the conclusion of the Six Years' Course, June, 1897.

Order of merit.	Name.	Naval construction.	Marine engines.	Designing machinery.	Boilers.	French, Spanish, and German.	Cruise reports.	Journals and station bills.	Aggregate for final examination.	Aggregate for four years.	Final aggregate.	Assignment.
	Maxima.....	32	72	36	40	28	16	16	240	760	1,000	
1	Thomas M. Dick	29.60	63.90	28.80	31.80	21.35	15.44	15.08	205.97	639.73	845.70	Assistant Engineer.
2	Charles K. Mallory	27.84	60.66	29.88	31.30	22.05	14.72	14.40	200.85	627.85	828.70	Assistant Engineer.
3	Newton Mansfield	24.88	57.60	27.72	32.70	18.90	15.84	16.00	193.64	611.17	804.81	Assistant Engineer.
4	James P. Morton	27.12	59.94	29.52	28.80	21.77	15.52	13.12	195.79	582.94	778.73	Assistant Engineer.
5	Daniel M. Garrison	25.12	58.14	27.90	26.70	17.85	13.60	13.84	183.15	594.86	778.01	Assistant Engineer.
6	Franklin D. Karns	24.00	57.60	25.92	24.70	21.00	15.08	13.28	182.18	592.85	775.03	Assistant Engineer.
7	Frederic K. Freeman	24.24	54.00	30.69	25.30	18.55	14.96	13.64	181.38	570.87	752.25	Assistant Engineer.
8	John F. Marshall, jr	23.60	51.48	25.38	26.20	19.95	12.88	11.60	171.09	551.07	722.16	Assistant Engineer.
9	Darwin R. Merritt	25.12	53.82	23.76	21.60	17.85	15.36	13.12	170.63	539.71	710.34	Assistant Engineer.
10	Ernst F. Eckhardt	23.68	48.78	27.36	25.20	14.70	14.24	14.00	167.96	528.85	696.81	Assistant Engineer.
11	Edward H. Dunn	18.64	44.64	24.57	25.40	16.10	13.84	10.80	153.99	537.98	691.97	Assistant Engineer.

Merit roll for the four years ending June, 1896, of the Naval Cadets of the class appointed in 1892, now performing required service afloat—Line Division—25 members.

Order of general merit for four years.	Name.	Aggregate for first year.	Aggregate for second year.	Aggregate for third year.	Aggregate for fourth year.	General aggregate for four years.
	Maxima	76	152	228	304	760
* 1	Richard H. Robinson	71.06	138.03	203.13	272.81	685.03
2	Jonas H. Holden	62.89	126.95	190.83	255.32	635.99
3	Thomas T. Craven	66.07	125.74	187.30	255.82	634.93
4	Charles L. Poor	69.53	127.13	184.82	247.82	629.30
5	Ralph Earle	67.57	126.36	181.32	253.49	628.74
6	Andrew E. Kalbach	60.46	121.18	183.22	249.69	614.55
7	Ralph E. Walker	59.03	126.25	186.93	240.04	612.25
8	Daniel W. Wurtsbaugh	60.66	115.51	180.13	247.10	603.40
9	Ivan C. Wettengel	59.42	118.11	176.25	244.38	598.16
10	Charles M. Tozer	62.70	116.04	178.39	240.03	597.16
11	Wat T. Cluverius, jr.	62.65	120.72	170.28	239.86	593.51
12	Duncan M. Wood	60.85	113.07	176.85	240.54	591.31
13	Leigh C. Palmer	66.26	119.79	168.54	233.39	587.98
14	Thomas A. Kearney	61.24	114.25	172.62	234.22	582.33
15	Arthur MacArthur, jr.	61.90	114.48	167.83	235.25	579.46
16	Frank E. Ridgely	62.82	115.77	167.96	231.73	578.28
17	Dudley W. Knox	57.49	114.04	167.47	238.08	577.08
18	Charles E. Gilpin	62.98	120.44	165.73	221.76	570.91
19	Mark St. C. Ellis	59.36	114.35	169.79	223.13	566.63
20	Edward McCauley, jr.	60.59	112.33	163.17	228.32	564.41
21	Earl P. Jessop	57.29	110.55	165.79	224.93	558.56
22	John H. Roys	54.28	110.71	156.53	225.72	547.24
23	Henry C. Mustin	53.52	110.94	161.19	217.66	543.31
24	Roland I. Curtin	54.18	108.06	158.02	218.08	538.34
25	Amon Bronson, jr.	56.23	100.26	152.16	209.55	518.20

Merit roll for the four years ending June, 1896, of the Naval Cadets of the class appointed in 1892, now performing required service afloat—Engineer Division—12 members.

Order of general merit for four years.	Name.	Aggregate for first year.	Aggregate for second year.	Aggregate for third year.	Aggregate for fourth year.	General aggre- gate for four years.
	Maxima	76	152	228	304	760
*1	Charles L. Leiper	68.15	138.60	190.49	269.09	655.73
2	Gatewood S. Lincoln	65.84	123.21	183.88	251.35	624.28
3	Edward T. Fitzgerald	59.45	117.60	176.26	253.84	607.15
4	Henry O. Bisset	65.30	125.67	177.09	225.93	593.99
5	Albert W. Marshall	55.84	112.34	169.76	244.87	582.81
6	Charles P. Burt	55.57	109.67	166.93	242.33	574.50
7	Kenneth G. Castleman	55.82	109.79	163.28	234.47	563.36
8	William L. Littlefield	56.55	107.96	161.90	233.04	559.45
9	Pope Washington	60.79	106.31	158.21	215.98	541.29
10	George B. Rice	52.31	109.04	153.34	226.52	541.21
11	James B. Henry, jr	61.27	103.80	156.24	212.95	534.26
12	Arthur Crenshaw	54.25	103.52	157.66	217.46	532.89

Merit roll for the four years ending June, 1897, of the Naval Cadets of the class appointed in 1893, now performing required service afloat—Line Division—37 members.

Order of general merit for four years.	Name.	Aggregate for first year.	Aggregate for second year.	Aggregate for third year.	Aggregate for fourth year.	General aggregate for four years.
	Maxima.....	76	152	228	304	760
*1	William G. Du Bose ¹	70.85	139.00	202.97	277.94	690.76
*2	Ernest F. Eggert ¹	62.22	134.27	209.50	275.99	681.98
*3	Joseph W. Powell ¹	64.78	130.16	199.69	266.87	661.50
*4	Harry E. Yarnell.....	64.87	131.28	194.27	265.32	655.74
*5	Harlan P. Perrill.....	64.81	126.65	194.56	263.23	649.25
6	Arthur J. Hepburn.....	65.30	121.86	192.94	263.19	643.29
7	David E. Theleen.....	61.46	123.51	189.14	251.48	628.59
8	Alfred W. Pressey.....	62.52	125.49	188.75	246.87	623.63
9	Needham L. Jones.....	63.32	127.66	180.19	251.01	622.18
10	William H. Reynolds.....	59.89	121.08	179.69	251.79	612.45
11	Luther M. Overstreet.....	58.56	124.63	181.41	247.73	612.33
12	Thomas C. Hart.....	56.00	115.73	184.17	254.33	610.23
13	Orin G. Murfin.....	59.48	120.13	180.85	249.20	609.66
14	Leonard R. Sargent.....	62.41	118.27	180.88	248.05	609.61
15	Cyrus R. Miller.....	62.38	122.33	184.25	236.94	605.90
16	Gilbert Chase.....	59.76	125.61	179.61	230.77	595.75
17	William R. White.....	59.47	119.76	187.54	226.22	592.99
18	Joseph W. Graeme.....	61.14	120.99	171.45	230.77	584.35
19	Victor S. Houston.....	62.60	122.96	170.85	227.57	583.98
20	Walton R. Sexton.....	56.59	114.56	170.96	241.64	583.75
21	David F. Boyd, jr.....	58.35	119.49	174.59	230.15	582.58
22	Frederic R. Holman.....	60.29	118.66	172.16	230.58	581.69
23	Walter M. Falconer.....	55.82	109.80	164.81	249.17	579.60
24	Albert H. McCarthy.....	53.66	114.55	174.51	233.13	575.85
25	Hilary Williams.....	58.59	113.95	169.12	223.19	564.85
26	Willis McDowell.....	56.84	111.98	169.02	226.16	564.00
27	Oscar D. Duncan.....	56.28	108.51	167.76	230.50	563.05
28	Arthur St. C. Smith, jr.....	55.15	112.80	164.21	229.77	561.93
29	Robert W. Henderson.....	54.75	111.83	165.83	225.60	558.01
30	Austin Kautz.....	60.04	114.22	164.77	217.40	556.43
31	Charles T. Owens.....	57.33	107.23	167.77	221.93	554.26
32	William P. Giles.....	52.58	110.21	166.57	219.61	548.97
33	William C. Asserson.....	55.87	112.52	161.79	217.29	547.47
34	Alfred C. Owen.....	60.10	110.80	157.83	213.94	542.67
35	Samuel G. Magill, jr.....	53.78	104.00	159.55	221.93	539.26
36	Irwin F. Landis.....	58.23	109.76	155.62	214.44	538.05
37	Clarence S. Kempff.....	52.64	109.95	156.98	214.52	534.09

¹Pursuing post-graduate course in naval construction at Naval Academy.

Merit roll for the four years ending June, 1897, of the Naval Cadets of the class appointed in 1893, now performing required service afloat—Engineer Division—10 members.

Order of general merit for four years.	Name.	Aggregate for first year.	Aggregate for second year.	Aggregate for third year.	Aggregate for fourth year.	General aggre- gate for four years.
	Maxima.	76	152	228	304	760
1	Daniel S. Mahony.....	64.15	117.73	182.02	253.25	617.15
2	Henry L. Collins.....	60.51	115.16	185.17	248.60	609.44
3	Louis C. Richardson.....	56.86	118.99	175.22	237.49	588.56
4	Andrew T. Graham.....	53.91	111.31	172.78	232.57	570.57
5	Henry N. Jenson.....	53.58	113.69	167.01	233.39	567.67
6	Peter L. Pratt.....	59.03	106.82	165.18	235.06	566.09
7	William D. Leahy.....	53.75	107.12	166.89	234.08	561.84
8	George Webber.....	55.73	112.02	163.80	230.13	561.68
9	Ernest C. Keenan.....	57.67	105.72	156.63	220.79	540.81
10	George Van Orden.....	52.88	103.50	160.54	214.42	531.34

Merit roll of the Naval Cadets of the First Class—Line Division—37 members—Annual Examination, June, 1897—Continued.

Order of annual merit.	Name.	Seamanship, naval construction, and naval tactics.	Seamanship, practice cruise.	Ordnance and gunnery.	Navigation and compass deviation.	Navigation, practice cruise.	Least squares and applied mechanics.	Physics.	International law.	Physiology and hygiene.	Efficiency.	Conduct.	Aggregate.
	Maxima.....	52	8	60	48	8	20	20	16	8	26	32	304
24	Arthur St. C. Smith, jr.....	38.74	6.14	42.45	35.40	5.82	14.00	13.90	12.44	5.92	25.36	29.60	229.77
25	Victor S. Houston.....	37.18	6.32	41.10	34.68	6.80	14.40	13.85	12.52	5.84	26.72	28.16	227.57
26	William R. White.....	36.66	6.02	41.10	35.28	6.84	15.35	14.55	13.60	6.98	25.04	24.80	226.22
27	Willis McDowell.....	38.87	6.72	39.15	35.28	6.30	12.65	13.75	11.76	5.40	23.32	29.76	226.16
28	Robert W. Henderson.....	37.83	6.60	38.85	34.80	6.66	13.75	14.05	13.16	6.54	26.40	26.96	225.60
29	Hilary Williams.....	39.91	6.32	39.15	33.00	5.92	14.60	13.75	11.84	5.74	26.24	26.72	223.19
30	Samuel G. Magill, jr.....	37.44	5.82	42.15	37.20	6.52	14.30	13.80	12.08	5.90	24.80	21.92	221.93
31	Charles T. Owens.....	38.87	5.24	41.25	33.96	5.24	14.45	15.20	12.40	5.56	23.92	25.84	221.93
32	William P. Giles.....	36.01	6.06	38.25	32.64	6.08	12.30	13.25	12.08	5.58	23.36	32.00	219.61
33	Austin Kantz.....	35.49	6.24	39.15	32.40	6.02	13.15	12.95	12.60	5.86	24.96	27.28	217.40
34	William C. Asserson.....	36.66	6.54	36.90	33.72	7.02	12.90	14.25	11.48	6.00	25.20	27.92	217.29
35	Clarence S. Kempff.....	36.79	6.50	37.20	31.32	6.66	12.55	13.60	11.48	5.38	23.44	27.60	214.52
36	Irwin F. Landis.....	35.49	5.72	38.70	32.04	5.36	12.95	12.90	11.84	6.08	24.72	28.64	214.44
37	Alfred C. Owen.....	37.31	5.56	39.30	34.44	7.00	12.90	13.75	11.72	5.48	24.88	21.60	213.94

MERIT ROLL—FIRST CLASS.

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Order of annual merit.	Name.	Naval construction.											Physiology and hygiene.	Efficiency.	Conduct.	Aggregate.
		32	48	40	32	20	20	20	20	20	20	20	8	32	32	304
	Maxima.....															
1	Daniel S. Mahony.....	26.96	38.40	34.00	26.80	17.30	13.75	16.40	16.70	6.86	26.24	29.84				253.25
2	Henry L. Collins.....	26.24	36.96	31.60	25.04	16.35	15.05	17.05	16.95	6.96	27.12	29.28				248.60
3	Louis C. Richardson.....	23.92	35.88	31.00	24.88	15.85	13.20	14.75	14.15	7.06	24.80	32.00				237.49
4	Peter L. Pratt.....	22.72	37.20	30.40	24.56	14.45	15.25	14.45	13.85	6.74	25.84	29.60				235.06
5	William D. Leahy.....	24.72	34.80	30.00	22.96	15.70	14.05	16.35	15.50	6.72	25.44	27.84				234.08
6	Henry N. Jenson.....	24.24	35.04	28.50	22.16	14.95	14.55	14.85	14.50	6.40	26.96	30.64				233.39
7	Andrew T. Graham.....	24.16	35.88	28.60	22.64	14.90	14.35	14.05	14.75	5.96	26.00	31.28				232.57
8	George Webber.....	24.40	34.08	28.90	23.92	14.35	15.35	12.55	14.90	6.24	26.96	28.48				230.13
9	Ernest C. Keenan.....	23.68	32.28	28.10	22.72	14.95	12.10	14.90	14.60	6.02	23.44	28.00				220.79
10	George Van Orden.....	21.44	31.44	27.80	21.12	14.45	13.40	17.25	15.00	6.28	23.84	22.40				214.42
s†	Fletcher L. Sheffield.....	(a)	(a)	(a)	(a)	(a)	15.75	(a)	(a)	(a)	(a)					

MERIT ROLL—SECOND CLASS.

Merit roll of the Naval Cadets of the Second Class—40 members—Annual Examination, June, 1897.

Order of annual merit.	Name.												Aggregate.								
	Seamanship.		Astronomy.		Principles of mechanism and marine engines.		Practice cruise.		Calculus and mechanics.		Physics and chemistry.			French.		Mechanical drawing.		History.		Efficiency.		Conduct.
	12	12	32	8	48	40	8	12	8	20	20	20									
Maxima -----																					
*1 Henry Williams.....	10.08	10.80	27.60	7.20	43.92	36.10	6.04	9.39	6.42	16.50	26.81	200.86									
*2 John Halligan, jr.....	10.47	11.04	26.96	7.44	40.56	34.40	6.94	9.84	7.20	17.95	27.23	200.03									
*3 George L. Smith.....	10.59	11.19	27.84	6.94	40.68	33.90	6.44	11.28	6.26	17.50	26.25	198.87									
*4 William C. Watts.....	10.44	10.89	27.12	7.26	40.44	32.50	6.94	9.90	7.20	16.95	25.48	195.12									
5 Henry T. Wright.....	10.86	11.07	24.40	7.24	37.08	31.00	7.38	8.64	7.58	17.00	27.51	189.76									
6 Ralph N. Marble, jr.....	10.41	10.65	23.44	6.90	39.12	32.00	6.08	10.47	6.00	16.65	26.25	187.97									
7 Herman J. Elson.....	9.84	11.22	26.88	7.44	33.48	31.50	6.72	10.74	7.10	16.75	26.11	187.78									
8 Wilbur G. Briggs.....	9.99	10.20	24.48	6.48	37.80	31.60	5.70	8.85	6.88	17.05	25.34	184.37									
9 Lyman A. Cotten.....	9.87	10.11	22.88	6.34	37.08	32.10	5.86	9.51	6.18	16.40	27.23	183.56									
10 Henry C. Dinger.....	10.11	9.84	25.60	6.96	38.40	31.60	6.04	8.88	5.62	15.55	24.57	183.17									
11 Alexander N. Mitchell.....	8.64	9.15	24.48	7.20	34.20	29.90	5.88	11.31	6.42	16.60	23.48	179.26									
12 Ulysses S. Macy.....	10.08	9.96	23.04	6.92	36.60	30.00	5.78	10.23	5.92	16.25	24.22	179.00									
13 Edward W. McIntyre.....	9.90	10.59	22.00	6.78	35.28	29.50	6.30	8.64	6.82	16.05	23.67	178.53									
14 Edward Woods.....	10.62	9.45	23.44	7.00	33.36	27.80	7.08	9.12	6.98	17.00	26.25	178.10									
15 Charles Boone.....	10.47	10.29	22.88	6.64	34.92	28.90	6.48	8.91	6.16	16.80	24.89	177.30									
16 Frank L. Pinney.....	9.63	10.08	22.56	6.94	32.04	29.20	5.94	10.71	6.14	17.25	26.89	176.88									
17 James A. Hand, jr.....	10.35	10.71	22.72	6.75	35.04	31.80	6.74	9.00	7.00	16.05	20.02	176.21									
18 William P. Cronan.....	11.01	10.11	22.32	6.92	32.04	26.70	6.82	10.50	6.28	17.15	24.78	174.63									
19 Walter B. Tardy.....	10.56	10.56	22.00	7.24	30.72	29.40	5.86	7.50	6.20	17.60	24.57	172.21									
20 Zeno E. Briggs.....	9.12	9.81	22.56	6.70	32.04	27.60	5.22	10.56	7.08	16.05	23.34	172.08									
21 William B. Wells.....	8.82	9.33	21.84	5.96	33.96	29.10	5.68	7.74	5.66	15.65	26.74	170.48									
22 William T. Tarrant.....	8.34	9.45	22.00	5.72	30.00	28.30	6.60	9.21	7.28	16.30	26.88	169.93									
23 Guy W. Faller.....	8.55	8.82	23.12	5.58	34.68	28.20	5.98	9.30	5.70	15.50	24.36	162.79									

24	Louis Shane.....	9.33	9.66	21.76	5.54	36.72	29.10	7.20	8.43	6.00	15.35	19.45	109.04
25	George C. Sweet.....	9.66	8.94	23.44	6.28	31.44	27.70	6.20	10.14	5.72	16.30	22.61	108.43
26	Edward T. Constien.....	8.31	8.58	22.64	5.66	31.32	26.50	5.62	8.55	5.82	16.05	27.30	106.35
27	Clarence A. Abele.....	9.42	9.57	21.20	6.32	30.72	25.90	5.64	9.81	5.74	15.90	25.09	105.91
28	Franck T. Evans.....	10.05	9.27	20.00	6.84	30.12	25.00	6.96	8.34	6.28	16.50	26.18	105.54
29	John F. Babcock.....	9.36	9.15	21.76	6.44	31.68	27.60	5.72	8.13	5.44	16.40	21.63	103.31
30	Thomas L. Johnson.....	9.54	8.91	20.80	6.30	30.60	26.50	5.78	9.75	6.64	15.70	22.68	103.20
31	John A. Schofield.....	7.92	9.15	23.68	5.24	31.44	27.80	5.70	8.13	5.44	15.00	22.33	101.83
32	Yancey S. Williams.....	9.18	9.66	21.28	5.32	30.72	26.10	5.56	7.53	6.04	15.95	24.36	101.70
33	George T. Pettengill.....	9.81	9.24	21.12	6.10	30.72	26.80	6.24	8.79	6.50	15.65	20.16	101.13
34	Walter G. Roper.....	8.94	8.82	20.96	5.86	32.04	26.60	5.16	8.10	5.54	15.85	23.10	100.97
35	Charles P. Nelson.....	9.57	7.98	20.64	6.84	30.12	25.20	5.74	9.33	5.74	17.40	21.84	100.40
36	John S. Graham.....	9.09	7.95	20.64	6.40	30.60	25.40	5.66	8.04	6.06	16.35	24.01	100.20
+	David C. Hanrahan.....	10.05	8.88	21.68	6.36	29.40	25.00	5.42	8.34	5.46	16.75	23.31	100.65
+	Morris H. Brown.....	9.27	9.03	21.04	6.92	28.08	25.00	6.06	8.07	6.32	15.95	22.96	138.70
s [†]	James B. Gilmer.....	(a)	(a)	(a)	5.94	(a)	(a)	(a)	(a)	(a)	(a)	(a)	-----
s [†]	Zachariah H. Madison.....	(a)	(a)	(a)	5.64	(a)	(a)	(a)	7.59	(a)	(a)	(a)	-----

Merit roll of the Naval Cadets of the Third Class—55 members—Annual Examination, June, 1897.

Order of annual merit.	Name.	Trigonometry, analytical geometry, and descriptive geometry.	Physics and chemistry.	English and law.	French and Spanish.	Mechanical drawing.	Efficiency.	Conduct.	Aggregate.
	Maxima.....	40	16	20	20	24	12	20	152
*1	Herbert G. Sparrow.....	35.70	14.24	18.70	19.05	21.30	10.35	19.20	138.54
*2	Guy A. Bisset.....	37.40	14.48	17.90	18.80	20.52	9.63	17.85	136.58
*3	Allen Buchanan.....	36.60	14.48	17.75	17.35	20.16	10.62	19.20	136.16
*4	Edward B. Fenner.....	32.20	13.08	17.80	18.35	22.44	10.17	18.90	133.04
5	Richard D. White.....	31.90	12.84	16.60	18.10	18.90	10.41	18.60	127.35
6	Ernest A. Weichert.....	32.00	11.88	17.20	18.65	18.72	9.81	19.00	127.26
7	Henry M. Gleason.....	30.20	12.76	15.90	16.75	22.86	10.08	18.25	126.80
8	John E. Bailey.....	34.10	14.04	16.30	16.60	18.00	10.17	17.20	126.41
9	Victor A. Kimberly.....	32.30	12.36	15.05	17.20	19.92	10.08	17.40	124.31
10	Hilary H. Royall.....	33.10	13.84	15.75	15.90	17.76	9.72	18.15	124.22
11	Welborn C. Wood.....	30.00	13.08	16.45	17.25	18.24	9.69	19.45	124.16
12	John T. Beckner.....	35.50	12.88	16.15	16.30	16.08	9.81	16.45	123.17
13	Paul B. Dungan.....	31.20	12.40	15.90	16.40	20.76	9.66	16.55	122.87
14	Everit J. Sadler.....	31.00	12.60	15.85	17.65	18.90	9.90	16.30	122.20
15	Clark H. Woodward.....	27.10	11.36	15.65	16.05	22.80	9.78	19.20	121.94
16	Cyrus W. Cole.....	29.80	11.24	14.75	15.65	22.50	9.81	18.10	121.85
17	Henry E. Lackey.....	27.60	11.80	14.15	17.35	21.42	10.41	18.70	121.43
18	Claude C. Bloch.....	33.80	13.96	15.15	16.05	15.18	9.24	17.85	121.23
19	Joseph K. Taussig.....	28.40	11.44	15.20	14.60	21.90	10.32	19.05	120.91
20	William S. Miller.....	29.30	10.88	16.20	18.30	17.46	9.96	16.45	118.55
21	William N. Jeffers.....	25.10	10.16	16.80	20.75	16.80	10.17	18.55	118.33
22	Charles E. Morgan.....	27.60	12.44	15.20	15.65	17.58	9.87	19.10	117.44
23	Edward C. Kalbfus.....	29.00	11.00	16.15	16.20	16.86	9.81	17.85	116.87
24	John E. Lewis.....	29.80	10.88	13.45	13.85	21.12	9.84	17.55	116.49
25	Samuel I. M. Major.....	27.90	11.88	15.00	16.65	17.04	9.78	18.10	116.35
26	James R. Combs.....	25.40	10.76	15.35	14.15	23.34	9.60	17.65	116.25
26	Frederick J. Horne.....	28.60	10.40	14.95	15.55	20.10	9.75	16.90	116.25
28	James W. L. Clement, jr.....	27.30	10.44	15.55	16.95	17.64	9.78	18.55	116.21
29	James E. Mathews.....	28.40	11.64	13.75	15.20	18.60	9.84	18.70	116.13
30	Adolphus E. Watson.....	27.00	10.24	13.30	14.55	22.80	9.99	18.15	116.03
31	Roe W. Vincent.....	28.00	11.20	14.25	15.70	21.00	9.39	15.60	115.14
32	Samuel B. Thomas.....	27.50	10.28	13.60	13.70	20.34	10.38	18.90	114.70
33	Charles H. Fischer.....	29.10	10.52	13.55	14.15	19.08	9.99	18.30	114.69
34	Farmer Morrison.....	27.20	12.20	15.75	15.15	15.48	9.93	18.40	114.11
35	James H. Tomb.....	28.60	11.80	14.25	14.50	18.12	9.81	16.60	113.68
36	John W. Greenslade.....	26.00	10.60	15.10	14.45	19.44	9.93	17.90	113.42
37	William R. Sayles.....	27.40	10.84	15.75	14.00	15.72	9.81	19.35	112.87
38	Harry L. Brinser.....	27.90	10.88	14.05	14.45	17.64	9.36	18.45	112.73
39	Charles E. Courtney.....	27.40	11.04	16.70	15.05	15.78	9.84	16.90	112.71
40	Alexander F. H. Yates.....	27.20	10.52	13.50	15.30	18.12	9.63	18.40	112.67
41	Ralph E. Pope.....	25.80	10.64	14.30	13.45	19.26	9.45	18.70	111.60
42	Lloyd S. Shapley.....	27.80	11.40	14.05	13.85	15.30	9.90	19.10	111.40
43	Alfred W. Johnson.....	25.90	10.44	13.90	16.20	16.98	10.20	17.35	110.97
44	Edgar B. Larimer.....	25.60	10.20	14.35	14.05	17.70	9.75	19.30	110.95
45	John T. Bowers.....	27.90	10.92	13.80	16.35	17.52	10.02	13.60	110.11

Merit roll of the Naval Cadets of the Fourth Class—70 members—Annual Examination, June, 1897.

Order of annual merit.	Name.	Algebra and geometry.	English and history.	French and Spanish.	Efficiency.	Conduct.	Aggregate.
	Maxima	20	20	20	4	12	76
* 1	William B. Ferguson, jr	16.90	18.35	18.25	3.32	11.37	68.19
* 2	Edward S. Jackson, jr	16.30	17.30	19.55	3.34	11.49	67.98
* 3	Samuel W. Bryant	17.30	15.95	19.10	3.48	11.10	66.93
* 4	Charles P. Snyder	16.20	17.15	17.35	3.46	11.70	65.86
* 5	John A. Spilman	16.80	16.70	17.05	3.49	11.40	65.44
* 6	Frederick R. Naile	15.55	17.20	17.60	3.26	11.43	64.84
* 7	John J. Hyland	15.95	16.10	17.90	3.24	11.49	64.68
8	William McEntee	16.70	16.40	16.80	3.39	11.28	64.57
9	Stafford H. R. Doyle	14.25	17.30	17.85	3.41	11.13	63.94
10	William S. Case	15.95	16.95	17.15	3.33	10.26	63.64
11	William K. Riddle	16.25	15.90	17.50	3.34	10.59	63.58
12	Luke E. Wright, jr	14.00	16.95	17.30	3.38	10.05	61.68
13	Huntington Johnston	14.70	16.70	15.65	3.32	11.28	61.65
14	Sinclair Gannon	14.80	16.10	15.70	3.44	11.52	61.56
15	William H. Boardman	15.90	14.45	16.45	3.36	11.31	61.47
15	Willis G. Mitchell	15.60	16.20	15.20	3.31	11.16	61.47
17	Edward O. Cresap	16.85	14.70	14.70	3.43	11.40	61.08
18	Herbert C. Cocke	15.00	15.15	16.10	3.33	11.46	61.04
19	Arthur B. Keating	14.50	16.80	15.20	3.29	11.22	61.01
20	William F. Bricker	14.75	15.00	16.10	3.32	11.52	60.69
21	Wilbert Smith	14.50	16.65	15.50	3.35	10.62	60.62
22	Paul Foley	14.55	15.70	16.05	3.25	10.80	60.35
23	Robert T. Wood	14.20	15.30	17.05	3.30	10.05	59.90
24	Charles S. Freeman	12.55	17.15	15.30	3.31	11.46	59.77
25	Frank D. Berrien	15.05	16.00	15.30	3.26	10.05	59.66
26	William V. Tomb	13.80	15.70	15.65	3.44	11.04	59.63
27	Carlos A. Gardiner	13.70	15.75	16.90	3.25	10.02	59.62
28	John D. Wainwright	13.50	15.00	16.30	3.39	11.28	59.47
29	Carleton R. Kear	15.40	14.40	15.45	3.25	10.89	59.39
30	Joseph R. Defrees	15.20	14.65	14.75	3.29	11.46	59.35
31	Hollis T. Winston	15.45	15.35	15.10	3.18	10.02	59.10
32	John G. Church	13.55	16.80	15.25	3.24	10.23	59.07
33	Charles T. Wade	14.75	15.55	14.35	3.33	11.07	59.05
34	Julius F. Hellweg	13.35	15.55	15.45	3.32	11.34	59.01
35	George W. Steele, jr	13.00	14.60	16.20	3.31	11.40	58.51
36	Bayard T. Bulmer	13.10	15.50	15.45	3.26	11.04	58.35
37	Abram C. Howard	13.80	14.75	15.40	3.16	11.07	58.18
38	Henry L. Roosevelt	13.05	14.70	16.40	3.28	10.41	57.84
39	Josiah W. Enbody	12.60	14.40	16.00	3.27	11.40	57.67
40	Edison E. Scranton	13.55	16.00	13.80	3.33	10.86	57.54
41	Charles R. Train	13.65	13.85	15.65	3.37	10.66	57.38
42	Robert Morris	14.80	13.95	14.75	3.25	10.59	57.34
43	James H. Comfort	13.90	14.80	13.85	3.24	11.43	57.22
44	Robert A. Abernathy	13.20	15.80	13.90	3.17	11.01	57.08
45	Robert L. Berry	13.15	14.50	14.80	3.37	11.22	57.04

Merit roll of the Naval Cadets of the Fourth Class—70 members—Annual Examination, June, 1897—Continued.

Order of annual merit.	Name.	Algebra and geometry.	English and history.	French and Spanish.	Efficiency.	Conduct.	Aggregate.
	Maxima	20	20	20	4	12	76
46	Kirby B. Crittenden	13.05	14.75	15.95	3.22	10.05	57.02
47	Emil P. Svarz	15.05	13.45	13.80	3.33	11.34	56.97
48	Stanley Woods	14.25	15.35	13.95	3.35	10.05	56.95
49	Hayne Ellis	13.05	15.45	14.35	3.20	10.80	56.85
50	Loveman Noa	14.15	14.95	14.40	3.19	10.11	56.80
51	Ward K. Wortman	15.00	14.15	13.70	3.31	10.35	56.51
52	John W. Timmons	13.45	13.35	14.95	3.44	11.04	56.23
53	John F. Mann	12.75	14.50	14.95	3.21	9.96	55.37
54	Harry K. Cage	13.30	14.20	13.25	3.30	11.19	55.24
55	Robert T. Menner	14.15	13.35	13.20	3.26	10.83	54.79
56	John F. James	13.05	14.25	16.05	3.28	8.04	54.67
57	Edwin H. Dodd	12.90	14.45	15.00	3.23	9.06	54.64
58	Benjamin G. Barthalow	13.10	14.10	13.65	3.14	10.35	54.34
59	Clive K. Hulick	12.75	12.90	14.70	3.19	10.44	53.98
60	John M. Caffery	12.95	13.55	14.00	3.06	10.32	53.88
61	Charles P. Huff	13.25	14.10	13.45	3.15	9.78	53.73
62	John W. Schoenfeld	13.65	14.20	13.15	3.23	9.21	53.44
63	William H. Shea	12.65	13.45	13.40	3.30	10.47	53.27
64	George B. Landenberger	13.40	13.80	13.75	3.27	8.76	52.98
65	Clarence L. Arnold	13.15	13.20	12.80	3.23	10.44	52.82
66	Hugo W. Osterhaus	13.35	12.50	12.65	3.32	10.56	52.38
67	Clarence E. Landram	12.85	13.65	13.10	3.17	7.89	50.66
f	Hiroaki Tamura	14.80	11.60	10.25	3.39	11.70	51.74
s	Harold B. Miles	(a)	(a)	(a)	(a)	(a)	-----
s	Robert Y. Rhea	(a)	(a)	(a)	(a)	(a)	-----

REGULATIONS

GOVERNING

THE ADMISSION OF CANDIDATES INTO THE NAVAL ACADEMY AS CADETS.

NOMINATION.

I. The students at the Naval Academy shall be styled *naval cadets*.—(*Rev. Stat.*, § 1512, and act of Congress approved August 5, 1882.)

II. There shall be allowed at said Academy one naval cadet for every Member or Delegate of the House of Representatives, one for the District of Columbia, and ten at large.—(*Rev. Stat.*, § 1513, and act of Congress approved June 17, 1878.) *Provided, however*, That there shall not be at any time more in said Academy appointed at large than ten.—(*Act of Congress approved August 5, 1882.*)

III. The course of naval cadets is six years.—(*Rev. Stat.*, § 1520.) Four years at the Naval Academy and two years at sea, at the expiration of which time the cadet returns to the Academy for final graduation, and the district then becomes vacant.

IV. Appointments to fill all vacancies that may occur during a year in the lower grades of the Line and Engineer Corps of the Navy and of the Marine Corps will be made from the naval cadets, graduates of the year, at the conclusion of their six years' course, in the order of merit as determined by the Academic Board of the Naval Academy. *At least* fifteen appointments from such graduates will be made each year. Surplus graduates who do not receive such appointments will be given a certificate of graduation, an honorable discharge, and one year's sea pay, as provided for naval cadets.—(*Act of Congress approved August 5, 1882.*)

V. "The Secretary of the Navy shall, as soon after the 5th of March in each year as possible, notify, in writing, each Member and Delegate of the House of Representatives of any vacancy that may exist in his district. The nomination of a candidate to fill said vacancy shall be made upon the recommendation of the Member or Delegate, if such recommendation is made by the 1st day of July of that year; but if it is not made by that time the Secretary of the Navy shall fill the vacancy by appointment of an actual resident of the district in which the vacancy exists, who shall have been for at least two years immediately preceding the date of his appointment an actual and bona fide resident of the district in which the vacancy exists and of the legal qualification under the law as now provided. The candidate allowed for the District of Columbia and all the candidates appointed at large shall be selected by the President."—(*Rev. Stat.*, § 1514.)

VI. "Candidates allowed for Congressional districts, for Territories, and for the District of Columbia must be actual residents of the districts or Territories, respectively, from which they are nominated. *And all candidates must, at the time of their examination for admission, be between the ages of¹ fifteen and twenty years and physically sound, well-formed, and of robust constitution.*"—(*Rev. Stat.*, § 1517.)

¹ Act 2d March, 1889.

VII. Candidates who may be nominated in time to enable them to reach the Academy by the 15th of May will receive permission to present themselves on that date to the Superintendent for examination for admission. Those who may not be nominated in time to present themselves at the May examination will be examined on the first of September following.

When either of the above dates shall fall on Sunday, the candidates shall present themselves on the Monday following.

Candidates will be required to enter the Academy immediately after passing the prescribed examination.

No leave of absence will be granted to cadets of the fourth class.

EXAMINATION.

VIII. "*All candidates for admission into the Academy shall be examined according to such regulations and at such stated times as the Secretary of the Navy may prescribe. Candidates rejected at such examination shall not have the privilege of another examination for admission to the same class unless recommended by the board of examiners.*"—(Rev. Stat., § 1515.)

IX. "When any candidate who has been nominated upon the recommendation of a Member or Delegate of the House of Representatives is found, upon examination, to be physically or mentally disqualified for admission, the Member or Delegate shall be notified to recommend another candidate, who shall be examined according to the provisions of the preceding section."—(Rev. Stat., § 1516.)

X. Candidates will be examined physically by a board composed of three medical officers of the Navy at the Naval Academy. Any one of the following conditions will be sufficient to cause the rejection of a candidate, viz:

- Feeble constitution, inherited or acquired;
- Retarded development;
- Impaired general health;
- Decided cachexia, diathesis, or predisposition;
- Any disease, deformity, or result of injury that would impair efficiency, such as—
- Weak or disordered intellect;
- Cutaneous or communicable disease;
- Unnatural curvature of spine, torticollis, or other deformity;
- Inefficiency of either of the extremities or large articulations from any cause;
- Epilepsy or other convulsions within five years;
- Impaired vision, disease of the organs of vision, imperfect color sense; visual acuteness must not fall below fifteen-twentieths of the normal in either eye;
- Impaired hearing or disease of the ear;
- Chronic nasal catarrh, ozæna, polypi, or great enlargement of the tonsils;
- Impediment of speech to such an extent as to impair efficiency in the performance of duty;
- Disease of heart or lungs or decided indications of liability to cardiac or pulmonary affections;
- Hernia, complete or incomplete, or undescended testis;
- Varicocele, sarcocele, hydrocele, stricture, fistula, hemorrhoids, or varicose veins of lower limbs;
- Disease of the genito-urinary organs;
- Chronic ulcers, ingrowing nails, large bunions, or other deformity of feet;
- Loss of many teeth, or teeth generally unsound.

Attention will also be paid to the stature of the candidate, and no one manifestly under size for his age will be received at the Academy. In the case of doubt about the physical condition of the candidate, any marked deviation from the usual standard of height or weight will add materially to the consideration for rejection. Five feet will be the minimum height for the candidate.

XI. Candidates will be examined mentally by the academic board in reading, writing, spelling, arithmetic, geography, English grammar, United States history, and algebra. Deficiency in any one of these subjects will be sufficient to insure the rejection of the candidate.

GENERAL CHARACTER OF THE MENTAL EXAMINATION.

READING AND WRITING.—Candidates must be able to read understandingly, and with proper accent and emphasis, and to write legibly, neatly, and rapidly.

SPELLING.—They must be able to write from dictation paragraphs from standard pieces of English literature, both prose and poetry, sufficient in number to test fully their qualifications in this branch. The spelling throughout the examination will be considered in marking the papers.

ARITHMETIC.—The candidate will be required—

To express in figures any whole, decimal, or mixed number; to write in words any given number; to perform with facility and accuracy the various operations of addition, subtraction, multiplication, and division of whole numbers, whether abstract or concrete, and to use with facility the tables of money, weights, and measures in common use, including English money.

To reduce compound numbers from one denomination to another, and to express them as decimals, or fractions of a higher or lower denomination; to state the number of cubic inches in a gallon, and the relation between the Troy and Avoirdupois pounds, and to reduce differences of time to differences of longitude, and *vice versa*.

To define prime and composite numbers; to give the test of divisibility by 3, 5, 7, 9, 11, 25, and 125; to resolve numbers into their prime factors, and to find the least common multiple and the greatest common divisor of large as well as of small numbers.

To be familiar with all the processes of common and decimal fractions and to give clearly the reasons for such processes, and be able to use the contracted methods of multiplication and division given in the ordinary text-books on arithmetic.

To define ratio and proportion, and to solve problems in simple and compound proportion.

To solve problems involving the measurement of rectangular surfaces and of solids, to find the square roots and the cube roots of numbers, and to solve simple problems under percentage, interest, and discount.

The candidates are required to possess such a thorough understanding of all the fundamental operations of arithmetic as will enable them to apply the various principles to the solution of any complex problem that can be solved by the methods of arithmetic; in other words, they must possess such a complete knowledge of arithmetic as will enable them to proceed at once to the higher branches of mathematics without further study of arithmetic.

ALGEBRA.—The examination in *algebra* will be elementary in character, and will be limited to questions and problems upon the fundamental rules, factoring, algebraic fractions, and simple equations of one or more unknown quantities.

GRAMMAR.—In *English grammar* candidates must exhibit a familiarity with all the parts of speech and the rules in relation thereto; they must be able to parse any ordinary sentence given to them, and generally must understand those portions of the subject usually taught and comprehended under the heads of orthography, etymology, and syntax.

The questions will usually be arranged in three divisions. The first division will contain questions somewhat like these:

Explain the use of the objective case. What verbs have distinction of voice? Give the possessive plural of *sea*, *valley*, *basis*, *stratum*, *bandit*.

The second division will contain one or more sentences to be parsed, *e. g.*:

"*They were always a strange family; they rarely acted like other people; their*

hearts were in the right place, but their heads always seemed to be doing anything but what they ought." Such a sentence must be parsed *fully*, giving the part of speech, and kind, case, voice, mood, tense, number, person, degree of comparison, etc., as the case may be, of each word, and its relation to the other words; thus—

Strange is a descriptive adjective, positive degree. It qualifies the noun *family*.

Comparative, *stranger*.

Superlative, *strangest*.

Acted, an intransitive verb, regular (or weak) in conjugation, indicative mood. past tense, third person, plural number. Its subject is *they*.

The third division will contain a number of incorrect sentences to be corrected; thus—

1. *Describe the sources from which our knowledge of these events are derived.*
2. *How sweetly their voices sound!*
3. *Try and do as you was told!*
4. *I should have liked to have been there and seen it.*
5. *There's a sweet little cherubim sits up aloft to keep watch for the life of Poor Jack!*

Among these, correct sentences will sometimes be introduced to test more thoroughly the knowledge of the candidate.

Since the school grammars used in different parts of the country vary among themselves in their treatment of certain words, an answer approved by any grammar of good repute will be accepted.

GEOGRAPHY.—Candidates will be required to pass a satisfactory examination, written or oral, or both, in descriptive geography, particularly of our own country. Questions will be given under the following heads: The definitions of latitude and longitude; the zones; the grand divisions of the land and water; the character of coast lines; the direction and position of important mountain chains and the locality of the higher peaks; the position and course of the principal rivers, their tributaries, and the bodies of water into which they flow; the position of important seas, bays, gulfs, and arms of the sea; the position of independent States, their boundaries and capital cities; the position and direction of great peninsulas, and the situation of important and prominent capes, straits, sounds, channels, and the most important canals; great lakes and inland seas; position and political connection of important islands and of colonial possessions; localities of cities of historical, political, or commercial importance, attention being especially called to the rivers and bodies of water on which cities are situated; the course of a vessel in making a voyage between well-known ports.

The candidate's knowledge of the geography of the *United States* can not be too full or specific on all the points referred to above. Accurate knowledge will also be required of the position of the country with reference to other States, and with reference to latitude and longitude; of the boundaries and relative position of the States and Territories, of the name and position of their capitals, and of other important cities and towns.

HISTORY.—Candidates should be familiar with as much of the history of the United States as is contained in the ordinary school histories.

The examination will be either written or oral, or both; questions of the same general character as the following will be given:

1. Name the earliest European settlements within the present limits of the United States, and give their positions. When and by whom were these settlements made?
2. Explain the three forms of government in the colonies; royal, proprietary, and charter. Name the colonies that originally existed within the present limits of Massachusetts; of Connecticut. When were these colonies united? What did the colony of Pennsylvania include? When was it divided?
3. State the leading events of the colonial wars, and give the results of each war.
4. What were the remote and immediate causes of the Revolution? Explain the navigation acts, the stamp act, writs of assistance. Name the principal battles

and other leading events in the wars of the United States, giving the names of commanding officers and stating the results of the battles.

5. Give an account of the formation and adoption of the Constitution.

Give the names of the Presidents, in order, and the leading events in each administration.

ADMISSION.

XII. Candidates that pass the physical and mental examinations will receive appointments as naval cadets, and become students at the Academy. Each cadet will be required to sign articles by which he binds himself to serve in the United States Navy eight years (including his time of probation at the Naval Academy) unless sooner discharged. The pay of a naval cadet is \$500 a year, commencing at the date of his admission.

XIII. Cadets will supply themselves, immediately after their admission, with the following articles; viz.,

One dress jacket	\$19.50	One reefer	\$9.00
One blouse	11.75	One jackknife .....	.75
Two pairs trousers	21.00	Six sheets	3.36
Three working suits	2.85	Hammock clews .....	.53
One overcoat	22.50	One pair of bathing trunks .....	.15
One rubber coat	4.00	Three pairs white thread gloves .....	.54
One rubber hat .....	.60	Two black silk neckties .....	.40
Two pairs of regulation leggins	1.50	Two clothes bags .....	.42
Two parade caps	5.90	One hammock mattress	3.00
One knit cap .....	.68	a One requisition book .....	.30
One mug .....	.13	a One pass book .....	.30
One soap box .....	.63	a Stencil, ink, and brush .....	.48
One laundry book .....	.27	a One bottle of indelible ink .....	.18
One pair of blankets	2.36	a One wash basin and pitcher .....	.85
Two pairs of high shoes	7.00	a One pair of gymnasium slippers	1.15
One pair of overshoes .....	.60	* One whisk .....	.15
Eight white shirts	4.40	* One coarse comb .....	.12
Twelve linen collars	1.50	* One cake of soap .....	.10
Eight pairs of cuffs	1.76	* One hairbrush .....	.53
* Eight pairs of socks	1.76	* Stationery .....	.50
* Eight towels	1.76	* Twelve white handkerchiefs	2.40
* Shaving outfit	1.65	* One pair of suspenders .....	.40
* Four pairs of drawers (winter)	5.00	* Four suits pajamas	6.00
b Four pairs of drawers (summer)	1.60	* One toothbrush .....	.20
* Four undershirts (winter)	5.00	* Thread and needles .....	.19
b Four undershirts (summer)	1.60	* Blacking brush and blacking .....	.55
One hand glass .....	.36	* Nailbrush .....	.30
Four woolen shirts	8.40	Six pillow cases	1.50
One blue jersey	2.38	One black silk neckerchief .....	.60
Two striped jerseys	1.74	Name plate .....	.30
Three white hats	1.20	Two white blouses	4.00
	141.38		39.27

When moving into cadet quarters, cadets will supply themselves with the following articles; viz.,

a Two bedspreads	\$1.60	One mirror	\$1.05
a Two pairs of drill gloves	1.00	a One rug .....	.84
a One slop jar .....	.90	a One hair mattress	5.25
a Two spatter cloths .....	.80	a One broom .....	.17
One hair pillow .....	.80		7.31
	5.10		

Articles marked *a* will not be taken on board the practice ship.

Of the articles marked *b*, cadets entering in September must have four each.

The articles marked *, not being required to conform to a standard pattern, may be brought by the cadet from home, but all other articles must conform to the regulations, and must therefore be supplied by the storekeeper.

Each naval cadet must, on admission, deposit with the pay officer the sum of \$20, for which he will be credited on the books of that officer, to be expended by direction of the Superintendent in the purchase of text-books and other authorized articles besides those enumerated in the preceding article.

All deposits for clothing and the entrance deposit of \$20 must be made before a candidate can be received into the Academy.

SUMMARY OF EXPENSES.

Deposit for clothing, etc	\$193.06
Deposit for books, etc	20.00
Total amount required	213.06

The value of clothing brought from home is to be deducted from this amount.

Each naval cadet *one month after admission* will be credited with the amount of his actual expenses in traveling from his home to the Academy.

COURSE OF INSTRUCTION

[Reference books are marked (*).]

FIRST YEAR—FOURTH CLASS.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
MATHEMATICS	4	4	ALGEBRA: Fundamental operations; reduction and conversion of fractional and surd quantities; reduction and solution of equations of the first and second degrees; inequalities; involution and evolution; arithmetical, geometrical, and harmonical progression.	Hall and Knight's Elementary Algebra. Hall and Knight's Higher Algebra. Todhunter's Algebra.*
	2	4	GEOMETRY: Geometry of the straight line, of the circle, and of the plane; theory of proportion; properties of similar figures.	Chauvenet's Geometry.
ENGLISH	2	4	ENGLISH: The structure and historical development of the English language; syntax; analysis of sentences; punctuation and capitals; exercises in the composition of letters.	Whitney's Essentials of English Grammar. Hart's Punctuation. Buehler's Practical Exercises in English.* Webster's Dictionary.*
	3	4	HISTORY: Outlines of history, especially the history of Greece and Rome, and of the states of western Europe; historical geography; important points in naval history, by notes.	Swinton's Outlines of the World's History. Labberton's Historical Atlas.*
LANGUAGES.....	5	4	FRENCH: By "The Natural Method;" pronunciation drill on the sounds or vowels and the articulations or consonants with their combinations; verb drill on the auxiliaries, the conjugations and the irregulars; lecture, questionnaire, grammare, and dictée on practical subjects.	Méthode Néel—Le Premier Livret avec Tableaux Muraux. Marion's Le Verbe en Quatre Tableaux Synoptiques. Bercy's Le Français Pratique. Bellow's French-English and English-French Dictionary.*

FIRST YEAR—FOURTH CLASS—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
MATHEMATICS-----	3	4	ALGEBRA: Course for first term continued. Development of algebraic functions by means of indeterminate coefficients and the binomial theorem; permutations and combinations; theory of probability; summation of series; continued fractions; logarithms and the use of tables; exponential equations; theory of equations, including the solution of numerical equations; determinants.	Hall and Knight's Higher Algebra. Bowditch's Useful Tables.
	2	4	GEOMETRY: Course for first term continued. Spherical geometry; the cone and the cylinder; mensuration of rectilinear figures, and of the sphere, cone, and cylinder; application of algebra to determinate geometry.	Chauvenet's Geometry.
ENGLISH-----	2	4	ENGLISH: Words, sentences, and paragraphs; exercises in the composition of letters and telegrams. Themes.	A. S. Hill's Foundations of Rhetoric. Buehler's Practical Exercises in English.* Webster's Dictionary.*
	3	4	HISTORY: Progress of colonial development in America, and the history of the United States; important points in the naval history of the United States by notes or lectures.	Eliot's History of the United States. Mitchell's Atlas.*
LANGUAGES-----	5	4	FRENCH: By "The Natural Method." Course of the first term continued. SPANISH: By "The Natural Method." Given as an advanced course, with same subjects as in French.	Bercy's Le Français Pratique. Bercy's Lectures Faciles avec Notes Grammaticales et Explicatives. Marion's Le Verbe. Worman's First Book in Spanish. Cortina's Verbos Españoles. Pocket Dictionary, English-Spanish, Tauchnitz edition.*

SECOND YEAR—THIRD CLASS.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
MATHEMATICS -----	1	4	DESCRIPTIVE GEOMETRY: Orthographic projections, representation of points, lines, and planes; problems relating to the right line and the plane; representations of surfaces of the second order; projections of the sphere.	Church's Descriptive Geometry. Rittenhouse's Exercises in Descriptive Geometry Drawing.
	4	4	TRIGONOMETRY: Measures of arcs and angles; trigonometric functions; analytical investigations of trigonometric formulas, with their application to all the cases of plane and spherical triangles; construction and use of trigonometric tables; inverse trigonometric functions; De Moivre's theorem; solution of trigonometric equations; practical applications of trigonometry to the solution of plane and spherical triangles, the astronomical triangle, and the measurements of heights and distances.	Chauvenet's Trigonometry. Levett and Davison's Plane Trigonometry. Bowditch's Useful Tables.
ENGLISH -----	2	4	ENGLISH: Rhetoric and composition; choice and use of words; kinds of composition; narration and description; argumentative composition; exercises in the composition of official dispatches, letters, and telegrams. Themes.	A. S. Hill's Principles of Rhetoric. Buehler's Practical Exercises in English.* Webster's Dictionary.*
	2	4	LAW: The Constitution of the United States.	Andrews's Manual of the Constitution.
LANGUAGES -----	3	4	FRENCH: By "The Natural Method." Reading comedies and reciting the parts from memory; writing anecdotes from dictation; sea terms and phrases; personnel; organization; distinguishing flags; honorary distinctions; uniforms; ceremonies and salutes of the French and English navies.	Modern French Comedy. College series. Picard et Freemantle. Langage Marin: Connaissances utiles aux officiers des Marines de France et d'Angleterre.
			SPANISH: By "The Natural Method." Continued and given as an advanced course.	Modern Spanish Comedy. Sea Terms and Phrases. (Department pamphlet.) Knapp's Spanish Grammar.*

SECOND YEAR—THIRD CLASS—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
DRAWING -----	4	4	MECHANICAL DRAWING: Sketching from models; the use of instruments; construction of scales; notation and symbols used in mechanical drawings; construction of rectilinear and curved figures to scale; drawing section lines; round writing. Drawing exercises in descriptive geometry, including the projections of lines and the representation of planes and geometrical solids, and the projections and sections of surfaces and solids.	Faunce's Mechanical Drawing. Rittenhouse's Exercises in Descriptive Geometry Drawing.

SECOND TERM.

PHYSICS -----	4	4	PHYSICS: An elementary course intended to present the leading principles and the correlation of the branches of physical science, to which more time is devoted during the second and first class years. Constant practice with the fundamental and derived units of the C.G.S. system. Practical work in the physical laboratory; experiments illustrating the daily recitations and exact measurements of length, mass, volume, and specific gravity. Lectures. CHEMISTRY: Recitations in general and organic chemistry. Practical work in the chemical laboratory; experiments illustrating the daily recitations and the determination of simple salts, acids, and bases. Lectures.	Daniell's Principles of Physics. Practical Physics, by Stewart and Gee. Remsen's General Chemistry. Lecture Notes.
MATHEMATICS ----	5	4	Stereographic Projections and Solutions of the "Astronomical Triangle." ANALYTICAL GEOMETRY: Equations of the straight line and of the conic sections; transformation of coördinates; properties of the conic sections; equations to tangents and normals; determination of loci; discussion of the general equation of the second degree.	Hendrickson and Dresel's Stereographic Projections. C. Smith's Conic Sections.

SECOND YEAR—THIRD CLASS—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
ENGLISH	2	4	ENGLISH: Classification of words; definition of words by usage and by derivation; synonyms; laws of change in the meaning of words; faults in diction and their remedies; selection and arrangement; elementary principles of reasoning; principles of composition; exercises in the composition of official dispatches, letters, and telegrams. Themes.	Abbott and Seeley's English Lessons for English People. Abbott's How to Write Clearly. Buehler's Practical Exercises in English.* Webster's Dictionary.*
LANGUAGES	2	4	FRENCH: Course of the first term continued. SPANISH: Course of the first term continued.	Same as for the first term.
DRAWING	2 $\frac{1}{4}$	4	MECHANICAL DRAWING: Sketching from models; representation of objects by projections; drawing the projections of models to scale; oblique projections; drawing screws, bolts, nuts, and gearing; round writing.	Faunce's Mechanical Drawing.

THIRD YEAR—SECOND CLASS.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
SEAMANSHIP.....	1	4	SEAMANSHIP: Use of the compass, lead, and log; signals; blocks and tackles; running rigging; description and use of sails and their fittings; purchasing weights; boats and their management; ground tackle; handling anchors; handling sails; port drills and evolutions; management under sail; duties of naval cadets; rules of the road.	Luce's Seamanship. Department circulars.
STEAM ENGINEERING.	3	4	PRINCIPLES OF MECHANISM: Conversion of circular into reciprocating motion; link work; conversion of reciprocating into circular motion; the teeth of wheels; the use of wheels in trains; aggregate motion; truth of surface and the power of measurement; miscellaneous contrivances.	Goodeve's Elements of Mechanism. Gow's Notes and Problems in Elementary Mechanism.
MECHANICS	5	4	DIFFERENTIAL CALCULUS: Functions; rates; differentials of functions; indeterminate forms; series; maxima and minima; geometrical applications; functions of two or more variables. INTEGRAL CALCULUS: The methods of integration; definite integrals; quadrature of surfaces; cubiture of volumes; rectification of curves; centers of gravity; moments of inertia; planimeters; rules for approximate determination of the areas and volumes.	Rice and Johnson's Differential Calculus. Johnson's Integral Calculus.

THIRD YEAR—SECOND CLASS—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
PHYSICS.....	4	4	<p>PHYSICS: Recitations on simple harmonic motion; wave motions, sound, light, and heat. Practical work in the physical laboratory; experiments illustrating the daily recitations, and some exact measurements, such as the determination of the candle power of gas and electric lights, index of refraction of glass prisms and lenses and of liquids, focal length of lenses; length of light waves. Photography.</p> <p>CHEMISTRY: Short course in chemical analysis.</p>	<p>Daniell's Principles of Physics.</p> <p>Ganot's Physics.</p> <p>Stewart's Treatise on Heat.</p> <p>Practical Physics, by Stewart and Gee.</p> <p>Kohlrausch's Physical Measurements.</p> <p>Lecture Notes.</p> <p>Stoddard's Outline of Qualitative Analysis for Beginners.</p>
ENGLISH	1	4	HISTORY: The history of the United States Navy.	Maclay's History of the United States Navy.
LANGUAGES.....	1	4	<p>FRENCH: Conversation upon articles and paragraphs selected from newspapers.</p> <p>SPANISH: Same</p>	<p>Le Courier des États-Unis.</p> <p>Langage Marin—continued.</p> <p>Las Novedades.</p>
DRAWING	2	4	MECHANICAL DRAWING: Drawing gearing; sketching machinery and making working drawings; round writing; tracings and blue-prints of drawings. Topographical and isometrical drawing exercises.	<p>Tomkin's Machine Construction.*</p> <p>Faunce's Mechanical Drawing.</p>

THIRD YEAR—SECOND CLASS—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
SEAMANSHIP.....	1	4	Course of the first term continued...	Same as for the first term.
NAVIGATION.....	2	4	THE CELESTIAL SPHERE: Spherical and rectangular coördinates; use of instruments, especially those for determining terrestrial latitudes and longitudes; refraction; dip; parallax; the earth, sun, planets, and solar system in general; different units of time and calendars; laws of universal gravitation, precession, nutation, and aberration; the moon; eclipses and occultations; tides; comets and meteoric bodies; fixed stars; nebulae; motion of the solar system; solutions of the astronomical triangle; use of the Nautical Almanac. Dead reckoning and "day's work."	White's Astronomy. Bowditch's Navigator. American Ephemeris and Nautical Almanac
STEAM ENGINEERING.	3	4	MARINE ENGINES: Early history and progress of marine engineering; work and efficiency; nature and properties of heat; application of heat to water; combustion of coal and economy of fuel; arrangement and efficiency of boilers; fittings and mountings of boilers; corrosion and preservation of boilers; efficiency of the steam; methods of increasing the expansive efficiency of steam; compound engines; condensation of steam; regulating and expansion valves and gear; slide valves and fittings; starting and reversing gears; cylinders and their fittings; condensers and fittings; rotatory motion; details of compound and triple-expansion engines; propulsion, screw-propellers; the indicator and indicator diagrams; auxiliary machinery and fittings.	Sennett's Marine Steam Engine. Marine Engines: Problems, Notes, and Sketches. 1895.

THIRD YEAR—SECOND CLASS—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
MECHANICS	4	4	MECHANICS: Kinematics; statics; kinetics; hydromechanics; the motion of projectiles; friction and other resistances; the application of mechanical principles to simple machines and to instruments.	Johnson's Mechanics. Bowser's Hydromechanics.
PHYSICS	4	4	PHYSICS: Recitations in light and heat concluded. Electricity and magnetism commenced. Practical work in the physical laboratory; calibration of thermometers; determination of the hygrometric state of the atmosphere; measurements of the coefficients of expansion and the specific heat and latent heat of various substances; other experiments illustrating the course of study and leading to the skillful use of instruments of precision. Photography. General experiments illustrating the phenomena of statical and voltaic electricity; setting up and comparing galvanic cells and secondary batteries; measuring their resistance and electro-motive force; calibration of galvanometers; determination of dip and horizontal intensity.	Same as for the first term. Thompson's Electricity and Magnetism. Ayrton's Practical Electricity. Day's Exercises in Electrical Measurements.* Lecture notes.
ENGLISH	1	4	HISTORY: The history of the United States Navy.	Maclay's History of the United States Navy.
LANGUAGES	1	4	Course of the first term continued.	Same as first term.

FOURTH YEAR—FIRST CLASS—LINE DIVISION.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
SEAMANSHIP.....	3	4	<p>SEAMANSHIP: Stowage and organization; boats and their management; ground tackle; handling anchors; handling sails; management under sail and under steam; turning and maneuvering; wharfing, docking, towing, anchoring, mooring, etc.; emergencies; port drills and evolutions; duties of officers and crew; routine; rules of the road; laws of storms and management in cyclones; use of sounding machine.</p> <p>NAVAL TACTICS: Organization of the fleet; school of the ship; section and squadron; evolutions of the fleet; signaling by Army and Navy code; Navy and International codes of flag signals.</p>	<p>Luce's Seamanship. Department Circulars. Navy Regulations.</p> <p>Navy and International Signal Books. Fleet Drill Book (Navy Department).</p>
ORDNANCE.....	3	4	<p>INSTRUCTIONS FOR INFANTRY AND ARTILLERY: Schools of the squad, company, battalion, and brigade, in close and extended orders; street-riot drill; ceremonies.</p> <p>GUNNERY DRILL: Distribution of the crew to the guns and other stations; duties of officers and men; drill of guns of the main and secondary batteries.</p> <p>GUNS AND GUN MOUNTS: Metals used in their construction; description and manufacture of service guns and their mounts for main and secondary batteries; nomenclature, care, and preservation of the ordnance outfit.</p>	<p>Instructions for Infantry and Artillery United States Navy.</p> <p>Gunnery Drill Book for the New Armaments.</p> <p>Text-book of Ordnance and Gunnery. Descriptions of Modern Ordnance and Modern Gun Mounts.</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
NAVIGATION.....	4	4	<p>THE THEORY AND PRACTICE OF NAVIGATION, including instruction in the duties of the navigator, the construction and use of navigating instruments, the use of tables, and the solution of problems; determination of meridian distances.</p> <p>HYDROGRAPHIC SURVEYING: The instruments used; selection and measurements of bases; determination of azimuth of base; triangulation; determination of heights; leveling; plotting a survey; hydrographical surveying; tidal observations; current observations; sailing directions; the form of the earth, with special reference to the construction of charts; projections; running surveys.</p>	<p>Chauvenet's Spherical and Practical Astronomy.*</p> <p>Walker's Navigation.</p> <p>Bowditch's Navigator.</p> <p>American Ephemeris and Nautical Almanac.</p> <p>Phelps's Practical Marine Surveying.</p> <p>Projection Tables.</p> <p>Craig's Azimuth.*</p>
MECHANICS.....	3	4	<p>METHOD OF LEAST SQUARES: The theory of least squares and probable errors; fundamental principles of the theory; practical methods and formulas; independent observations; conditioned observations.</p> <p>APPLIED MECHANICS: Strength of materials; elasticity; stress and strain; theory of structures; strength and deflection of beams; beams of uniform resistance.</p>	<p>Johnson's Method of Least Squares.</p> <p>Cotterill and Slade's Lesson in Applied Mechanics.</p> <p>Cotterill's Applied Mechanics.</p>
PHYSICS.....	3	4	<p>PHYSICS: Recitations in electricity and magnetism; practical work in physical laboratory; determination of the constants of galvanometers; testing ammeters and voltmeters; running dynamos and electric motors and measuring their efficiency; experiments on the electric transmission of energy; testing cables and electric-light wires; experiments upon induction; practice in photography and micro-photography.</p>	<p>Same as for the second class year.</p> <p>Thompson's Dynamo Electric Machinery.</p> <p>Lecture Notes.</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
SEAMANSHIP-----	4	4	<p>NAVAL CONSTRUCTION: Definitions; history and practice of shipbuilding in iron and steel; systems of construction, subdivision, and armoring; systems of pumping, draining, ventilating, steering, and hoisting; fittings in general; distribution of armor, guns, and boats; special constructions; launching; types of ships; structural strength and strains; buoyancy and stability in the intact and the damaged conditions; theory and observation of waves; rolling and pitching; principles of stowage; resistance, propulsion, and steering of ships; qualities of ships; construction and use of diagrams of qualities; the use of qualities; steam steering gear; steam capstan; plans of ships and reproduction in mold loft; finding the displacement of ships and center of buoyancy, etc.</p>	<p>Special Notes and Drawings. Navy Department Pamphlets. White's Manual of Naval Architecture. Walton's Know Your Own Ship.</p>
ORDNANCE-----	5	4	<p>BALLISTICS: The laws of combustion of gunpowder; velocities and pressures in guns; rifling, effect on pressure; the motion of projectiles in a nonresisting medium and in air; computation and use of ballistic and range tables; accuracy and probability of fire; derivation of rules for correcting the errors which occur in gunnery practice; the penetration and effect of projectiles.</p> <p>GUNS: Computation of their elastic strength and shrinkage.</p> <p>AMMUNITION: Its description, preparation, supply, stowage, and use.</p> <p>ARMOR: Description of; use of armor and other protection of matériel and personnel.</p> <p>TORPEDOES: Their description and use.</p>	<p>Interior and Exterior Ballistics. Accuracy and Probability of Fire. Ordnance Notes.</p> <p>The Elastic Strength of Guns. Text-book of Ordnance and Gunnery.</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
NAVIGATION.....	4	4	<p>THEORY OF THE DEVIATION OF THE COMPASS, including the nature and causes of the several parts of deviation, the determination of the vertical and horizontal forces of the earth and ship, the causes and amount of the heeling error, the changes that take place upon a change of geographical position, the graphic representations of the amount and direction of the forces that act on the needle, and the mechanical correction of the deviation and heeling errors.</p> <p>PRACTICAL NAVIGATION.</p> <p>PRACTICAL SURVEYING.</p>	<p>Admiralty Manual for the Deviations of the Compass.</p> <p>Diehl's Practical Problems and the Compensation of the Compass in the United States Navy.*</p>
ENGLISH	2	4	<p>INTERNATIONAL LAW: The objects, sources, and sanctions of international law; the laws of war, embargo, reprisal, and retorsion; blockade; contraband of war; right of search; ship's papers and nationality; prizes; privateering; piracy; the rights and duties of neutrals; jurisdiction over vessels at sea and in territorial waters; fugitives and deserters; licenses to trade; recaptures.</p>	<p>Woolsey's International Law.</p>
	1	4	<p>SPECIAL INSTRUCTIONS: General description of the human body and its functions; the arrest of hemorrhage; resuscitation from drowning; alcoholic drinks, tobacco, and other narcotics. (Lectures and practical instruction Fridays, 7:30 to 9:30 p. m., additional.)</p>	<p>Blaisdell's Practical Physiology.</p>

FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION.

FIRST TERM.

Department:	Number of recitations a week.	Number of months.	Subjects.	Text-books.
STEAM ENGINEERING.	3	4	MARINE ENGINES: Horse-power, nominal and indicated, and the efficiency of the engine; resistance of ships and indicated horse-power necessary for speed; space occupied by, and general description of, modern marine machinery; engines, simple and compound; expansion of steam, mean pressure, etc.; piston speed, stroke of piston, revolutions, size of cylinder, cylinder fittings, etc.; the piston, piston-rod, connecting-rod; shafting, cranks, and crank shafts, etc.; foundations, bed-plates, columns, guides, and framing; the condenser, pumps; valves and valve gear; valve diagrams, etc.; propellers; sea cocks and valves; fitting in of machinery, starting and reversing of engines; materials used by the marine engineer.	Seaton's Marine Engineering.
	2	4	BOILERS: Fuel, etc., evaporation; proportions; water-tube boilers; boiler details; mountings and fittings; wear and tear; repairs; performance; corrosion; determining the heating value of fuels; forced and natural draught and resistances; measurement of heat produced and wasted; analysis of waste gases; strength of boiler material; design; construction; board of trade rules; management; liquid fuel.	Seaton's Marine Engineering. Stromeyer's Marine Boiler Management and Construction.
	5	4	DESIGNING MACHINERY: Materials used in machine construction; straining actions to which machines are subjected; resistance of structures to different kinds of straining action; fastenings, riveted joints, bolts, nuts, keys, and cotters; pipes and cylinders; journals, pivots, axles, and shafting; crank-shaft design; practical designing of various parts of machines.	Unwin's Elements of Machine Design—Parts I. and II.

FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
MECHANICS	3	4	Same as for the line division.....	Same as for the line division.
PHYSICS.....	3	4	Same as for the line division.....	Same as for the line division.

SECOND TERM.

SEAMANSHIP.....	4	4	<p>NAVAL CONSTRUCTION: Definitions; history and practice of shipbuilding in iron, and steel; systems of construction, subdivision, and armoring; systems of pumping, draining, ventilating, steering, and hoisting; fittings in general; distribution of armor, guns, and boats; special constructions; launching; types of ships; structural strength and strains; buoyancy and stability in the intact and the damaged conditions; theory and observation of waves; rolling and pitching; principles of stowage; resistance, propulsion, and steering of ships; qualities of ships; construction and use of diagrams of qualities; the use of qualities; steam steering gear; steam capstan; plans of ships and reproduction in mold loft; finding the displacement of ships and center of buoyancy, etc.</p>	<p>Special Notes and Drawings. Navy Department Pamphlets. White's Manual of Naval Architecture. Walton's Know Your Own Ship.</p>
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FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
STEAM ENGINEERING.	3	4	MARINE ENGINES: Physical properties of steam; convertibility of heat and work, internal work; theory of the steam engine; characteristics of a perfect gas; completely superheated steam; thermodynamics of a perfect gas; theory of a heat engine working with a perfect gas; absolute scale of temperatures; performance of a perfect-heat engine; perfect steam engine; generation and expansion of steam; Carnot's principle; comparison of steam and air engines; adiabatic equation; adiabatic curves; nature of the process of expansion; area of the diagram of energy, mean temperature of supply; entropy; temperature entropy diagram; thermal indicator diagram; entropy of air and steam; losses of efficiency in heat engines; clearance and wire-drawing; feed-water heaters; utilization of low temperatures; formulæ connecting the pressure and temperature of saturated steam; dilatation and specific heat of water; geometry of the curve $PV^n = \text{Constant}$. Casting and moulding; pattern making and casting design; smithing and forging; boiler making and plate work; laying off machine work; erecting machinery; metals and alloys.	Cotterill's Steam Engine Considered as a Thermodynamic Machine. Lineham's Mechanical Engineering, Part I.
	3	4	BOILERS: Designing and drawing....	Same as for the first term, with notes.
	2	4	DESIGNING MACHINERY: Designing and drawing.	Same as for the first term, with notes.

FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
STEAM ENGINEERING—Continued.	3	4	EXPERIMENTAL ENGINEERING: Object of engineering experiment; classification of experiment; errors—probability, classification, and rejection; graphical representation of experiments; autographic diagrams; apparatus; testing machines; methods of testing materials of construction; friction testing of lubricants; measurement of power; measurements by meters; flow of steam; gas meters; anemometers; tests of pumps; measurement of pressure; measurement of temperature; measurement of moisture in steam; methods of testing steam boilers; the indicator and the indicator diagram; methods of testing steam engines; experimental determination of inertia; the injector and pulsometer; valve diagrams; refrigerating machinery; standardizing indicators and instruments of precision; dynamometric tests of propellers, etc.	Carpenter's Experimental Engineering.
	4	4	SPECIAL INSTRUCTION: Same as for the line division.	Same as for the line division.

ASSIGNMENT OF TIME.

Departments.	Fourth class.		Third class.		Second class.		First class, line division.		First class, engineer division.	
	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.
Seamanship					1	1	3	4		4
Ordnance							3	5		
Navigation						2	4	4		
Steam Engineering					3	3			10	11
Mechanics					5	4½	3		3	
Physics				4 F	4	4	3		3	
Mathematics	6	5	5	5						
English	5	5	4	2	1	1		2		
Languages	5	5½	3	2	1 F	1 F				
Drawing			4	2½	2					

SPECIAL INSTRUCTION.

The effects of alcohol, tobacco, and other narcotics		½ F		½ F
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F Friday 7:30 to 9:30 p. m.

PROGRAMME OF RECITATIONS.

FIRST TERM.

Departments.	Fourth class.	Third class.	Second class.	First class, line division.	First class, engineer division.
Seamanship			M. (3)	T. W. Th. (3)	
Ordnance				T. Th. (2), F. (3)	
Navigation				M. (3), W. F. S. (1)	
Steam Engineering			W. Th. F. (3)		{ W. F. S. (1), T. Th. (2), M. T. W. Th. F. (3).
Mechanics			M. T. W. F. (1), Th. (2)	M. W. F. (2)	M. W. F. (2)
Physics			M. T. W. F. (2)	M. T. Th. (1)	M. T. Th. (1)
Mathematics	M. T. W. Th. F. S. (1)	M. T. W. Th. F. (2)	Th. (1)		
English	M. T. W. Th. F. (2)	M. F. S. (1), T. (3)			
Languages	M. T. W. Th. F. (3)	T. W. Th. (1)	F. (7:30 to 9:30 p. m.)*		
Drawing		M. W. Th. F. (3)	T. (3), S. (1)		

SECOND TERM.

Seamanship			W. (2)	M. T. W. Th. (3)	M. T. W. Th. (3)
Ordnance				M. T. Th. (2), W. (1), F. (2)	
Navigation			M. T. (3)	M. T. Th. F. (1)	
Steam Engineering			W. Th. F. (3)		{ M. T. W. Th. F. (1), M. T. W. Th. F. (2), F. (3).
Mechanics			M. W. Th. F. S. (1)†		
Physics		{ M. T. W. F. (3), F. (7:30) to 9:30 p. m.)*	M. Th. F. (2), T. (1)		
Mathematics	M. T. W. Th. F. (2)	M. T. W. Th. F. (1)			
English	M. T. W. Th. F. (1)	M. Th. (2)	T. (2)	W. (2), F. (3)	
Languages	M. T. W. Th. F. (3), S. (1)†	T. W. (2)	F. (7:30 to 9:30 p. m.)*		
Drawing		Th. (3), F. (2), S. (1)†			
Special Instruction (Physiology and Hygiene).				S. (1)†, F. (7:30 to 9:30 p. m.)*	S. (1)†, F. (7:30 to 9:30 p. m.)*

* Lectures and practical instruction.

† Saturday period, second term, from January 31 to March 10.

TABLE OF COEFFICIENTS.

Department and subjects.	Fourth class.	Third class.	Second class.	First class, line division.	First class, engineer division.	Maxima for four years, line division.	Maxima for four years, engineer division.	Maxima for final graduation, line division.	Maxima for final graduation, engineer division.
Discipline:									
Conduct.....	3	5	7	8	8	168	168		
Efficiency.....	1	3	7	8	8				
<i>Seamanship.</i>									
Seamanship, Naval Construction, and Naval Tactics*.....			3	13	8		44	56	32
Practice Cruise.....				2		72			
<i>Ordnance.</i>									
Ordnance Instructions, Infantry Tactics, and Gunnery.....				†15		60		44	
Ordnance and Gunnery.....									
<i>Navigation.</i>									
Astronomy, Navigation, and Surveying.....			3	12			12	44	
Practice Cruise.....				2		68			
<i>Steam Engineering.</i>									
Principles of Mechanism and Marine Engines.....			8					20	
Practice Cruise.....					5	32			
Marine Engines.....					10				80
Designing Machinery.....					12				32
Boilers.....					8				20
Experimental Engineering.....					5		192		16
<i>Mechanics.</i>									
Differential and Integral Calculus, and Mechanics.....			12						
Least Squares and Applied Mechanics.....				5	5	68	68		
<i>Physics.</i>									
Chemistry and Physics.....		4							
Physics.....			10	5	5	76	76		
<i>Mathematics.</i>									
Algebra and Geometry.....	5								
Trigonometry, Analytical Geometry, and Descriptive Geometry.....		10				60	60		
<i>English.</i>									
English and History.....	5		2						
English and Law.....		†5					48		
International Law.....				4		64		24	
<i>Languages.</i>									
French and Spanish.....	5	5	2			48	48	28	28
<i>Drawing.</i>									
Mechanical Drawing.....		6	3			36	36		
<i>Miscellaneous.</i>									
Special Instructions (Physiology and Hygiene).....				2	2	8	8		
Cruise Report.....								16	16
Navigation Note Book, § Journals, and Station Bills.....								8	16
Maxima for each class.....	76	152	228	304	304	760	760	240	240

*Seamanship and Naval Tactics for line division alone.

†In making up the standing for a year the second term is given double the weight of the first term.

‡In making up the standing for a year the first term is given double the weight of the second term.

§ Navigation notebooks for line division alone.

PRACTICAL INSTRUCTION OF CADETS.

SEAMANSHIP.

Knotting and splicing; compass and lead line; ship nomenclature; cutting and fitting hemp rigging; cutting and fitting wire rigging; rowing, and the management of boats under oars and under sail; sailmaking; making up, bending, unbending, and handling sails; rigging ship; stripping ship; shifting spars; getting under way and anchoring; evolutions with vessels under sail and under steam; signaling, Army and Navy code; management of steam launches; steam fleet tactics with steam launches.

ORDNANCE.

Infantry, schools of the squad, company, and battalion, in close and extended orders; artillery, schools of the battery and battalion; exercise and target practice with small arms and guns of main and secondary batteries; exercise with cane, smallsword, and broadsword; handling and firing torpedoes, use of Riehlé and Rodman testing machines; determinations of velocities; experimental determination of range tables, also of the jump and drift; the preparation, inspection, care, and preservation of ordnance material.

Six medals are awarded annually for marksmanship: Gold, silver, and bronze medals to the cadets of the first class, as first, second, and third prizes, respectively, for excellence in rapid-fire gun practice; and gold, silver, and bronze medals to the cadets of the second class, as first, second, and third prizes, for excellence in practice with the service rifle and revolver.

In May, 1897, the medals for rapid-fire gun practice were awarded as follows:

Gold medal to Cadet E. F. Eggert.

Silver medal to Cadet A. H. McCarthy.

Bronze medal to Cadet W. M. Falconer.

The medals for small-arm marksmanship for 1897 were awarded as follows:

Gold medal to Cadet J. J. Brown.

Silver medal to Cadet T. L. Johnson.

Bronze medal to Cadet J. A. Hand.

On May 26, 1897, the battalion colors were awarded to the Second Division—Cadet Lieutenant Albert H. McCarthy, commanding—for general excellence during the academic year.

NAVIGATION.

Navigation: Observations, with sextant and artificial horizon, for time, longitude, chronometer correction, latitude, and azimuth.

Surveying: Surveying and constructing a chart of a portion of the Severn River.

Compass Deviations: Swinging an iron ship, and observing the deviations and the times of vibration of horizontal and vertical needles on different courses; from these observations finding the approximate and the exact coefficients, and the horizontal and the vertical forces acting on the standard and steering compasses; also finding the heeling coefficients for the same compasses without heeling the ship; also correcting the deviations of a compass, using a Navy compensating binnacle.

STEAM ENGINEERING.

Shop work: The Pattern Shop: Selection and treatment of different woods for different purposes. Elementary work of the carpenter shop, through mortising, joining, etc., to finished pattern work.

The Foundry: Iron and brass casting; the making of bronzes, alloys, etc.

The Blacksmith Shop: Forging, welding, etc.; tempering, casehardening, etc.; bending and quenching tests of metals.

The Boiler Shop: Riveting, soft and hard patching, calking, annealing, tube expanding, etc.; testing.

The Machine Shop: Vise bench work; machine tool work; including the setting of work; turning; planing; boring; slotting, etc.; pipe fitting; building, erection, and aligning of engines and engine fitting; preparation of working drawings and working from the same.

Ship work: Management of main and auxiliary engines; getting up steam at leisure and in emergencies; fire-room and engine-room routine, firing, water tending, and oiling; routine under way when desirable to obtain maximum speed; same for maximum steaming radius; management of engines while maneuvering at sea; determining the condition and locating defects in machinery while in motion; causes and prevention of explosion of boilers, steam pipes, gases in uptakes and in coal bunkers; lying under banked fires; coming to anchor; overhauling machinery; cleaning boilers and condensers; preservation of machinery of a vessel when out of commission; conducting progressive and full-power trials and the collecting of data.

Ordinary Casualties: Hot crown sheets, burst feed pipes, leaky boiler tubes and seams, burnt grate bars, hot pins and journals, fire in bunkers, flooded compartments.

Damages received in battle: Preparations for action; temporary repairs and alternative devices and expedients to be adopted in event of receiving injury from shot or torpedoes; quick methods of disabling machinery about to fall into the hands of the enemy.

Miscellaneous: Use of slide rule, averaging machine, apparatus for testing oils and smoke gases; standardizing steam gauges and indicators; preparing specifications for purchase of machinery and stores; testing, inspection, and preservation of stores; preparation of various cements, paints, and varnishes in ordinary use; selection of coals; making estimates of the amount of coal on hand, prevention of deterioration, etc.; making of watch, quarter, and station bills.

PHYSICAL TRAINING.

Class drills in calisthenics, free movements and with apparatus.

Special exercises to promote symmetrical development when necessary. Athletic exercises, including boxing and swimming. Dancing.

PROGRAMME OF PRACTICAL INSTRUCTION.

FIRST CLASS.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1897					
Oct...	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	9	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	16	Company.	Target, great guns.	Artillery.	Steam tactics.
		Company.	Seamanship.	Artillery.	Seamanship.
	23	Artillery.	Steam tactics.	Company.	Target, great guns.
		Artillery.	Battery drill.	Company.	Battery drill.
	30	Target, great guns.	Company.	Steam tactics.	Artillery.
		Seamanship.	Company.	Seamanship.	Artillery.
Nov...	6	Steam tactics.	Artillery.	Target, great guns.	Company.
		Battery drill.	Artillery.	Battery drill.	Company.
	13	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	20	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	27	Steam.	Practical ordnance.	Practical electricity	Sword exercise.
		Steam.	Practical ordnance.	Practical electricity	Sword exercise.
Dec...	4	Practical electricity	Sword exercise.	Steam.	Practical ordnance.
		Practical electricity	Sword exercise.	Steam.	Practical ordnance.
	11	Practical ordnance.	Steam.	Sword exercise.	Practical electricity
		Practical ordnance.	Steam.	Sword exercise.	Practical electricity
	18	Sword exercise.	Practical electricity	Practical ordnance.	Steam.
		Sword exercise.	Practical electricity	Practical ordnance.	Steam.
	25	Steam.	Practical ordnance.	Practical electricity	Sword exercise.
		Steam.	Practical ordnance.	Practical electricity	Sword exercise.
1898					
Jan...	1	No drills. [See note.*]			
	8	Practical electricity	Sword exercise.	Steam.	Practical ordnance.
		Practical electricity	Sword exercise.	Steam.	Practical ordnance.
	15	Practical ordnance.	Steam.	Sword exercise.	Practical electricity
		Practical ordnance.	Steam.	Sword exercise.	Practical electricity
	22	Sword exercise.	Practical electricity	Practical ordnance.	Steam.
		Sword exercise.	Practical electricity	Practical ordnance.	Steam.
	29	Semi-annual examination. No drills.			
Feb...	5	Steam.	Seamanship.	Practical electricity	Sword exercise.
		Steam.	Seamanship.	Practical electricity	Sword exercise.
	12	Practical electricity	Sword exercise.	Steam.	Seamanship.
		Practical electricity	Sword exercise.	Steam.	Seamanship.
	19	Seamanship.	Steam.	Sword exercise.	Practical electricity
		Seamanship.	Steam.	Sword exercise.	Practical electricity
	26	Sword exercise.	Practical electricity	Seamanship.	Steam.
		Sword exercise.	Practical electricity	Seamanship.	Steam.

FIRST CLASS—Continued.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1898					
Mar ..	5	Battalion artillery. Seamanship.	Battalion artillery. Seamanship.	Battalion artillery. Seamanship.	Battalion artillery. Seamanship.
	12	Target, great guns. Battery drill. Boats.	Steam tactics. Seamanship. Boats.	Skirmish. Battery drill. Boats.	Torpedoes. Seamanship. Boats.
	19	Skirmish. Landing party. Boats.	Torpedoes. Seamanship. Boats.	Target, great guns. Landing party. Boats.	Steam tactics. Seamanship. Boats.
	26	Steam tactics. Seamanship. Boats.	Target, great guns. Battery drill. Boats.	Torpedoes. Seamanship. Boats.	Skirmish. Battery drill. Boats.
Apr ..	2	Torpedoes. Seamanship. Boats.	Skirmish. Landing party. Boats.	Steam tactics. Seamanship. Boats.	Target, great guns. Landing party. Boats.
	9	Steam tactics. Landing party. Seamanship.	Steam tactics. Seamanship. Seamanship.	Steam tactics. Landing party. Seamanship.	Steam tactics. Seamanship. Seamanship.
	16	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.
	23	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.
	30	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.
May ..	7	Deviation compass. Seamanship. Seamanship.	Deviation compass. Seamanship. Seamanship.	Deviation compass. Seamanship. Seamanship.	Deviation compass. Seamanship. Seamanship.
	14	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.
	21	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.
	28	Annual examination. [No drills.]			
June	4	Drills for Board of Visitors, as per orders.			

Drills will be suspended from December 24 to January 2. There will be "Fire quarters" on one Wednesday afternoon in each month. Cadets of the Engineer Division of the first class will take part in drills on board the practice ship when underway, in "Practical electricity," in "General steam tactics," and at "Fire quarters." At other times they will have "Steam drill."

SECOND CLASS.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1897					
Oct...	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	9	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	16	Company.	Target, machine guns.	Artillery.	Steam tactics.
		Company.	Seamanship.	Artillery.	Seamanship.
	23	Artillery.	Steam tactics.	Company.	Target, machine guns.
Nov...		Artillery.	Battery drill.	Company.	Battery drill.
	30	Target, machine guns.	Company.	Steam tactics.	Artillery.
		Seamanship.	Company.	Seamanship.	Artillery.
	6	Steam tactics.	Artillery.	Target, machine guns.	Company.
		Battery drill.	Artillery.	Battery drill.	Company.
Dec...	13	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	20	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	27	Steam.	Signals.	Steam.	Sword exercise.
		Steam.	Seamanship.	Steam.	Sword exercise.
	4	Steam.	Sword exercise.	Steam.	Signals.
		Steam.	Sword exercise.	Steam.	Seamanship.
	11	Signals.	Steam.	Sword exercise.	Steam.
		Seamanship.	Steam.	Sword exercise.	Steam.
	18	Sword exercise.	Steam.	Signals.	Steam.
		Sword exercise.	Steam.	Seamanship.	Steam.
1898	25	Steam.	Signals.	Steam.	Sword exercise.
		Steam.	Seamanship.	Steam.	Sword exercise.
Jan...	1	No drills. [See note.]			
	8	Steam.	Sword exercise.	Steam.	Signals.
		Steam.	Sword exercise.	Steam.	Seamanship.
	15	Signals.	Steam.	Sword exercise.	Steam.
		Seamanship.	Steam.	Sword exercise.	Steam.
	22	Sword exercise.	Steam.	Signals.	Steam.
		Sword exercise.	Steam.	Seamanship.	Steam.
	29	Semi-annual examination. [No drills.]			
Feb...	5	Steam.	Practical ordnance.	Steam.	Sword exercise.
		Steam.	Practical ordnance.	Steam.	Sword exercise.
	12	Steam.	Sword exercise.	Steam.	Practical ordnance.
		Steam.	Sword exercise.	Steam.	Practical ordnance.
	19	Practical ordnance.	Steam.	Sword exercise.	Steam.
		Practical ordnance.	Steam.	Sword exercise.	Steam.
Mar...	26	Sword exercise.	Steam.	Practical ordnance.	Steam.
		Sword exercise.	Steam.	Practical ordnance.	Steam.
	5	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
		Seamanship.	Seamanship.	Seamanship.	Seamanship.
	12	Target, great guns.	Steam tactics.	Skirmish.	Target, small arms.
		Battery drill.	Seamanship.	Battery drill	Seamanship.
		Boats.	Boats.	Boats.	Boats.

SECOND CLASS—Continued.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1898					
Mar	19	Skirmish. Landing party. Boats.	Target, small arms. Seamanship. Boats.	Target, great guns. Landing party. Boats.	Steam tactics. Seamanship. Boats.
	26	Steam tactics. Seamanship. Boats.	Target, great guns. Battery drill. Boats.	Target, small arms. Seamanship. Boats.	Skirmish. Battery drill. Boats.
Apr	2	Target, small arms. Seamanship. Boats.	Skirmish. Landing party. Boats.	Steam tactics. Seamanship. Boats.	Target, great guns. Landing party. Boats.
	9	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.
	16	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.
	23	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.
	30	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.
May	7	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.
	14	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.
	21	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Steam tactics. Battalion infantry. Battle drill.
	28	Annual examination. [No drills.]			
June	4	Drills for Board of Visitors, as per orders.			

Drills will be suspended from December 24 to January 2. There will be "Fire quarters" on one Wednesday afternoon in each month.

THIRD CLASS.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1897					
Oct...	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	9	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	16	Company.	Boats.	Artillery.	Boats.
		Company.	Seamanship.	Artillery.	Seamanship.
	23	Artillery.	Boats.	Company.	Boats.
		Artillery.	Battery drill.	Company.	Battery drill.
	30	Boats.	Company.	Boats.	Artillery.
		Seamanship.	Company.	Seamanship.	Artillery.
Nov..	6	Boats.	Artillery.	Boats.	Company.
		Battery drill.	Artillery.	Battery drill.	Company.
	13	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	20	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	27	Steam.	Seamanship.	Target, small arms.	Sword exercise.
		Steam.	Seamanship.	Great guns.	Sword exercise.
Dec..	4	Target, small arms.	Sword exercise.	Steam.	Seamanship.
		Great guns.	Sword exercise.	Steam.	Seamanship.
	11	Seamanship.	Steam.	Sword exercise.	Target, small arms.
		Seamanship.	Steam.	Sword exercise.	Great guns.
	18	Sword exercise.	Target, small arms.	Seamanship.	Steam.
		Sword exercise.	Great guns.	Seamanship.	Steam.
	25	Steam.	Seamanship.	Target, small arms.	Sword exercise.
		Steam.	Seamanship.	Great guns.	Sword exercise.
1898					
Jan..	1	No drills. [See note.]			
	8	Target, small arms.	Sword exercise.	Steam.	Seamanship.
		Great guns.	Sword exercise.	Steam.	Seamanship.
	15	Seamanship.	Steam.	Sword exercise.	Target, small arms.
		Seamanship.	Steam.	Sword exercise.	Great guns.
	22	Sword exercise.	Target, small arms.	Seamanship.	Steam.
		Sword exercise.	Great guns.	Seamanship.	Steam.
	29	Semi-annual examination. [No drills.]			
Feb..	5	Steam.	Signals.	Target, small arms.	Sword exercise.
		Steam.	Seamanship.	Great guns.	Sword exercise.
	12	Target, small arms.	Sword exercise.	Steam.	Signals.
		Great guns.	Sword exercise.	Steam.	Seamanship.
	19	Signals.	Steam.	Sword exercise.	Target, small arms.
		Seamanship.	Steam.	Sword exercise.	Great guns.
	26	Sword exercise.	Target, small arms.	Signals.	Steam.
		Sword exercise.	Great guns.	Seamanship.	Steam.
Mar..	5	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
		Seamanship.	Seamanship.	Seamanship.	Seamanship.
	12	Target, small arms.	Seamanship.	Skirmish.	Boats.
		Battery drill.	Seamanship.	Battery drill.	Seamanship.
		Boats.	Boats.	Boats.	Boats.
	19	Skirmish.	Boats.	Target, small arms.	Seamanship.
		Landing party.	Seamanship.	Landing party.	Seamanship.
		Boats.	Boats.	Boats.	Boats.

THIRD CLASS—Continued.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1898.					
Mar ..	23	Seamanship. Seamanship. Boats.	Target, small arms. Battery drill. Boats.	Boats. Seamanship. Boats.	Skirmish. Battery drill. Boats.
Apr ..	2	Boats. Seamanship. Boats.	Skirmish. Landing party. Boats.	Seamanship. Seamanship. Boats.	Target, small arms. Landing party. Boats.
	9	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.
	16	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.
	23	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.
	30	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.
May ..	7	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.
	14	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.
	21	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.
	28	Annual examination. [No drills.]			
June	4	Drills for Board of Visitors as per orders.			
June 5 to Aug. 28.	—	Practice cruise.			

Drills will be suspended from December 24 to January 2. There will be "Fire quarters" on one Wednesday afternoon in each month.

FOURTH CLASS.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1897					
Oct...	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	9	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	16	Company.	Boats.	Artillery.	Boats.
		Company.	Seamanship.	Artillery.	Seamanship.
	23	Artillery.	Boats.	Company.	Boats.
		Artillery.	Battery drill.	Company.	Battery drill.
	30	Boats.	Company.	Boats.	Artillery.
		Seamanship.	Company.	Seamanship.	Artillery.
Nov...	6	Boats.	Artillery.	Boats.	Company.
		Battery drill.	Artillery.	Battery drill.	Company.
	13	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	20	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	27	Gymnastics.	Dancing.	Gymnastics.	Dancing.
		Gymnastics.	Seamanship.	Gymnastics.	Seamanship.
Dec...	4	Gymnastics.	Dancing.	Gymnastics.	Dancing.
		Gymnastics.	Seamanship.	Gymnastics.	Seamanship.
	11	Dancing.	Gymnastics.	Dancing.	Gymnastics.
		Seamanship.	Gymnastics.	Seamanship.	Gymnastics.
	18	Dancing.	Gymnastics.	Dancing.	Gymnastics.
		Seamanship.	Gymnastics.	Seamanship.	Gymnastics.
	25	Gymnastics.	Dancing.	Gymnastics.	Dancing.
		Gymnastics.	Seamanship.	Gymnastics.	Seamanship.
1898					
Jan...	1	No drills. [See note.]			
	8	Gymnastics.	Dancing.	Gymnastics.	Dancing.
		Gymnastics.	Seamanship.	Gymnastics.	Seamanship.
	15	Dancing.	Gymnastics.	Dancing.	Gymnastics.
		Seamanship.	Gymnastics.	Seamanship.	Gymnastics.
Jan...	22	Dancing.	Gymnastics.	Dancing.	Gymnastics.
		Seamanship.	Gymnastics.	Seamanship.	Gymnastics.
	29	Semi-annual examination. [No drills.]			
Feb...	5	Gymnastics.	Dancing.	Gymnastics.	Dancing.
		Gymnastics.	Seamanship.	Gymnastics.	Great guns.
	12	Gymnastics.	Dancing.	Gymnastics.	Dancing.
		Gymnastics.	Great guns.	Gymnastics.	Seamanship.
	19	Dancing.	Gymnastics.	Dancing.	Gymnastics.
		Seamanship.	Gymnastics.	Great guns.	Gymnastics.
	26	Dancing.	Gymnastics.	Dancing.	Gymnastics.
		Great guns.	Gymnastics.	Seamanship.	Gymnastics.
Mar...	5	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
		Seamanship.	Seamanship.	Seamanship.	Seamanship.
	12	Gymnastics.	Seamanship.	Skirmish.	Boats.
		Battery drill.	Seamanship.	Battery drill.	Seamanship.
		Boats.	Boats.	Boats.	Boats.
	19	Skirmish.	Boats.	Gymnastics.	Seamanship.
		Landing party.	Seamanship.	Landing party.	Seamanship.
		Boats.	Boats.	Boats.	Boats.

FOURTH CLASS—Continued.

Academic months.	Week ending—	First division.	Second division.	Third division.	Fourth division.
1898					
Mar ..	26	Seamanship. Seamanship. Boats.	Gymnastics. Battery drill. Boats.	Boats. Seamanship. Boats.	Skirmish. Battery drill. Boats.
Apr ..	2	Boats. Seamanship. Boats.	Skirmish. Landing party. Boats.	Seamanship. Seamanship. Boats.	Gymnastics. Landing party. Boats.
	9	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.
	16	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.
	23	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.	Battery drill. Battery drill. Seamanship.	Seamanship. Seamanship. Seamanship.
	30	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.	Seamanship. Seamanship. Seamanship.	Seamanship. Landing party. Seamanship.
May ..	7	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.	Company. Seamanship. Seamanship.
	14	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.	Battalion infantry. Battalion artillery. Seamanship.
	21	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.	Battalion infantry. Battalion artillery. Seamanship. Boats. Battalion infantry. Battle drill.
	28	Annual examination. [No drills.]			
June .	4	Drills for Board of Visitors, as per orders.			

Drills will be suspended from December 24 to January 2. There will be "Fire quarters" on one Wednesday afternoon in each month.

SUMMER ROUTINE.

(May 20 until October 1.)

Daily except Sunday.

3:30 to 10 a. m. Setting up drill, and infantry, in the armory.

10:20 to meridian. Swimming drill in the natatorium.

Cadets proficient in swimming are instructed in knotting, splicing, rigging, nomenclature of spars, and other practical work in the rigging loft, and sail loft.

Daily except Saturday and Sunday.

4 to 6 p. m. Drill in the cutters with oars, and under sail.

8 to 9 p. m. Gymnasium drill.

SUMMARY OF PRACTICAL INSTRUCTION.

Kind of instruction.	During the academic year.				Total number of instructions during academic year.	During summer months.				Total number of instructions.
	First class.	Second class.	Third class.	Fourth class.		Practice cruise.			Fourth class.	
						First class.	Second class.	Third class.		
Seamanship.....	60	61	109	85	315	-----	-----	-----	-----	315
Boats under oars, or sail.....	4	4	37	33	78	-----	-----	-----	-----	78
Steam tactics.....	37	33	-----	-----	70	-----	-----	-----	-----	70
Signals.....	-----	24	12	-----	36	-----	-----	-----	-----	36
Battery drill.....	12	12	14	14	52	-----	-----	-----	-----	52
Target practice, great guns.....	32	16	-----	-----	48	-----	-----	-----	-----	48
Battle drill.....	1	1	1	1	4	-----	-----	-----	-----	4
Landing party.....	4	4	4	4	16	-----	-----	-----	-----	16
Torpedoes.....	16	-----	-----	-----	16	-----	-----	-----	-----	16
Practical ordnance.....	40	20	-----	-----	60	-----	-----	-----	-----	60
Artillery.....	15	15	15	15	60	-----	-----	-----	-----	60
Battalion artillery.....	13	13	13	13	52	-----	-----	-----	-----	52
Target practice, machine guns.....	-----	16	-----	-----	15	-----	-----	-----	-----	16
Target practice, small arms.....	-----	16	52	-----	68	-----	-----	-----	-----	68
Company.....	20	24	24	24	92	-----	-----	-----	-----	92
Battalion infantry.....	9	9	9	9	36	-----	-----	-----	-----	36
Skirmish drill.....	16	16	16	16	64	-----	-----	-----	-----	64
Sword exercise.....	60	60	60	60	180	-----	-----	-----	-----	180
Practical instruction in deviation of compass.....	4	-----	-----	-----	4	-----	-----	-----	-----	4
Practical instruction, navigation.....	* 14	-----	-----	-----	-----	-----	-----	-----	-----	+14
Practical instruction, surveying.....	* 10	-----	-----	-----	-----	-----	-----	-----	-----	+10
Steam.....	{ +60	60	60	60	180	-----	-----	-----	-----	343
Running steam launches.....	+ 163	-----	-----	-----	163	-----	-----	-----	-----	37
Practical electricity.....	37	-----	-----	-----	37	-----	-----	-----	-----	55
* Study periods	55	-----	-----	-----	55	-----	-----	-----	-----	-----
	+ Line Division.									+ Engineer Division

* Study periods.

† Engineer Division.

* Line Division.

SUMMARY OF PRACTICAL INSTRUCTION—Continued.

Kind of instruction.	During the academic year.				Total number of instructions during academic year.	During summer months.				Total number of instructions.
	First class.	Second class.	Third class.	Fourth class.		Practice cruise.			Fourth class.	
						First class.	Second class.	Third class.		
Practical instruction in rigging loft, and in sail loft.....										112
Gymnastics and boxing.....				76	76				94	170
Swimming.....									112	112
Dancing.....				36	36					36
Boats.....									94	94
Setting-up drill.....									112	112

The instructions in seamanship and gunnery on board of the practice steamers are also made instructions in running and managing the engines and boilers of those vessels. The instructions in naval tactics are also made instructions in running and managing the engines and boilers of the steam launches when practicable.

POST-GRADUATE COURSE IN NAVAL CONSTRUCTION.

SUBJECT-MATTER OF PRINCIPAL COURSES.

A.—SHIP BUILDING AND DESIGN.

a. First year.

1. Introduction and generalities.
 - (1) Importance of subject; part played in the life of nations.
 - (2) Historic sketch of growth and development.
 - (3) Outline of the purpose and object of the study, of its scope and its limitations, of the method and sequence of treatment.
 - (4) Classification of vessels and analysis of the parts that make up a vessel.
2. Method of procedure in the construction of a vessel. (Treated in outline.)
 - (1) Appropriation by Congress: Derived from naval policy, growing out of national policy, interpreted by Administration.
 - (2) Preparation of approximate designs—proposals, specifications, contracts.
 - (3) Preparation of working plans—ordering material, laying down, mold loft.
 - (4) Preparation of building slip—keel blocks, shores, scaffolding.
 - (5) Receipt and inspection of material—Handling—Stowing—Pickling.
 - (6) Preparation and history of material—Bending, laying off, punching, shearing, countersinking, drilling, machining.
 - (7) Erecting—Securing in place—Harpings—Shores—Bolting—Riveting.
 - (8) Co-ordination and co-operation in all features—In ordering, preparing material, in advancing different parts of construction simultaneously.
3. *The construction of the parts of a battle ship.*
 - (1) *The skeleton.*
 - a* Keels.
 - b* Stems and sternposts.
 - c* Framing.
 - d* Longitudinals.
 - e* Deck beams and stanchions.
 - (2) *The coverings.*
 - a* Shell plating.
 - b* Inner bottom plating.
 - c* Deck plating and planking.
 - d* Wood sheathing.
 - (3) Subdivision into compartments, numbering compartments, deck arrangements (in outline), quarters, berthing, engine and boiler compartments, magazines, storerooms.
 - (4) Bulkhead construction.
 - (5) *Armor fitting and supports.* (Armoring is treated comparatively and critically in third year's course.)
Ordering armor, preparing molds.
Armor shelf.
Framing behind armor.
Plating behind armor.
Backing behind armor.
- (5a) Gun-mount fastenings, installation of turret guns.

3. *The construction of the parts of a battle ship*—Continued.

(6) Upper works—superstructure, bridges, masts, boatgear, anchor gear, etc.

(7) *Accessories* attached to hull.

Bilge keels.

Docking keels.

Shaft—Struts and tubes.

(8) *Openings*.

In hull below L. W. L.

In hull above L. W. L.

In deck above protective deck.

In deck below protective deck and in inner bottom.

In protective deck.

In bulkheads.

(9) Ventilation. Treated summarily. (Ventilation is treated at length in third year's course.)

(10) Water service—drainage and pumping. Treated summarily. (Water service is treated at length in third year's course.)

(11) Rudders and steering gear. Treated summarily. (Same are treated at length in third year's course.)

4. Corrosion and fouling, cementing, painting. Treated summarily. (Same are treated at length in third year's course.)

5. Stresses to which vessels are subjected. Treated summarily. (Same are treated at length in second year's course.)

6. Review of year's work—Examination.

*b. Second year.*1. *Introduction.*

(1) Short review of the whole field and of the work of the first year.

(2) Outline of the work laid out for the second year.

2. *Ship design.* (Begun.)

(1) The problem of design—condition to fulfill, nature of service.

(2) Apportionment of weights to: Hull and fittings, engines and boilers, armor, armament, coal, equipment, margin.

(3) Determination of coefficients and dimensions to fulfill conditions.

(4) Laying down and fairing lines.

(5) Distribution of weight of armament.

(6) Distribution of weight of armor.

(7) Determination of scantling, preparation of midship section.

(8) Rules of registration societies.

(9) Calculation of girder stresses.

3. *Features of ship-yard procedure.*

(1) Laying down and fairing lines.

(2) Mold loft work.

(3) Ordering material, taking shell plating off model.

(4) Laying off.

(5) Shop work—bending shed, frame shop, ship shed, smith shop, machine shop, pattern shop, joiner shop, paint shop.

(6) Transportation, handling, stowing.

(7) Erection—fitting in place, securing, riveting.

(8) Completion afloat—Placing armor, masts, machinery, etc.

4. *Comparative construction for different types of vessels.*

(1) Construction of the parts of a battle ship, reviewed.

(2) Construction of the parts of coast-defense vessels. Comparison with (1).

(3) Construction of the parts of cruisers. Comparison with (1) and (2).

(4) Construction of the parts of torpedo vessels. Comparison with (1), (2), and (3).

4. *Comparative construction for different types of vessels*—Continued.
 - (5) Construction of the parts of composite vessels. Comparison with (1), (2), (3), and (4).
 - (6) Construction of the parts of sailing vessels. Comparison with (1), (2), (3), (4), and (5).
5. *Boats and anchors*—Stowage, gear, fittings, davits, capstans, windlasses.
6. *Launching*—Execution of.
7. *Assemblages*—Riveted joints, riveting.
8. Review of year's work—Examination.

c. Third year.

1. *Introduction.*
 - (1) Short review of the whole field and of the work of the first and second years.
 - (2) Outline of work laid out for the third year.
2. *Ship's design.* (Completed.)
 - (1) Internal arrangements completed.
 - (2) Calculation and curves of weights, buoyancy, loads, shearing and bending for still water and in waves.
 - (3) Calculation for center of gravity, trim.
3. *Comparative construction for different nations.*
 - (1) Naval policies—Estimation of naval strength.
 - (2) Apportionment of weights.
 - (3) Speeds.
 - (4) Armor distribution.
 - (5) Armaments.
 - (6) Lines, hull work, hull fittings.
4. Rudders and steering gear.
5. Ventilation.
6. Water service—Main and secondary drains, fire main, flushing, etc.
7. Auxiliary machinery—Application of steam, hydraulic, pneumatic, electric, and hand power.
8. *Materials of construction.*

Woods—Construction in wood (brief description).
 Steel—Manufacture and inspection; rolled, forged, cast.
 Iron, brass, bronze, forgings, castings.
9. *Corrosion and fouling*; care and preservation.
10. *Docks and docking.*
11. *Tonnage, gauging.*
12. *Plant*—Location of shops, slips, etc., transportation, machine tools, power distribution, etc.
13. *Estimates*, making of, for cost, labor, and material, for first construction, alterations and repairs.
14. *Administration* and organization in Navy Department, Bureau of Construction and Repair, navy-yards, Department of Construction and Repair at navy-yards, private yards, office of superintending constructor at private yards.
15. Review of year's work—Examination.

B.—NAVAL ARCHITECTURE.

a. First year.

1. *Introduction and generalities.*
 - (1) Importance of subject, relation to shipbuilding.
 - (2) Historic sketch of origin, growth, and development.
 - (3) Outline of the scope of the subject, the parts comprised, the method and sequence of treatment.

2. *Ship calculations.*

- (1) Geometrical elements—Areas, surfaces, volumes, centers of gravity centers of volumes, moments of inertia, radii of gyration.

Methods of calculation, Trapezoidal rule.

Simpson's rules, Wooley's rule.

- (2) Displacement calculations, initial stability calculations, curves, displacement sheet.

3. *Statical stability.*

- (1) Analysis of forces at play, condition of equilibrium.

Transverse metacenter, longitudinal metacenter.

Classification of methods of calculation.

- (2) Method of calculations, stability sheets, diagrams.

Method of slices: Benjamin—Spence, McFarlane—Gray, Doyère, Clausel, Fellow, Couwenberg, Rossin, Method Boujion for longitudinal inclinations. Method of wedges: Reech—Risbec, Barnes, Taylor, Daymard—Analytical method of Goyon—Sinart.

- (3) Experimental methods—Heck, Blom.

- (4) Forms of diagrams, effect of freeboard, effect of forms, etc.

4. *Dynamical stability*—Methods of estimation—Wind curves.5. *Effect of alteration of weights.*

- (1) Moving weights on board.

- (2) Adding or subtracting weights.

- (3) Shifting cargoes, water ballast, oil cargoes, free water in hold, flooding.

6. *Floating derricks, floating docks, pontoons, air bags.*7. *Inclining experiment.*8. *Use of model*—Law of comparison.9. *Docking, grounding, hauling up, heaving down.*10. *Launching.*11. *Review of year's work*—Examination.b. *Second year.*1. *Introduction.*

- (1) Short review of the whole field and of the work of the first year.

- (2) Outline of work laid out for second year.

2. *The surface of buoyancy*—Properties.3. *The surface of flotation*—Properties.4. *The surface of slices*—Properties.5. *Symmetrical, complimentary, and supplementary surfaces*—Properties.6. *Resistance in still water, going ahead.*

- (1) Resistance of plates—Direct, oblique.

Experiments—effect of friction.

- (2) Resistance of angular bodies and of shipshape forms.

Experiments: theories—Scott Russell, Rankine, Simonot, Froude. Stream line theory, augmented surface.

- (3) Frictional resistance.

- (4) Wave-making resistance.

- (5) Eddy-making resistance, wake.

- (6) Effect of shoal water, effect of river currents, squat.

- (7) Air resistance.

- (8) Model experiments—Scale of comparison.

7. *Rolling in still water.*

- (1) Unresisted rolling in still water.

Condition of stability—Forces at play, determination of moment of inertia of vessel, comparison with pendulum, formula for unresisted rolling. Methods of integration—Graphic method.

Instantaneous axis, movement of metacenter.

Dipping oscillations.

Virtual gravity.

7. *Rolling in still water*—Continued.

(2) Resisted rolling in still water.

Conditions of stability—Methods.

Centers of oscillation.

Resistances—Fluid resistance, surface friction, keel resistance, waves formed.

Equation to curve of declining angles, coefficients of extinction, graphic construction of curve, graphic integration, Rankine's analysis.

Experiments, methods of conducting same, periods for type vessels, use of models—effect of bilge keels, effect of water chambers, effect of damaged condition, effect of gusts, capsizing.

8. *Pitching in still water.*9. *Review of year's work*—Examination.*c. Third year.*1. *Introduction.*

(1) Short review of the whole field and of the work of the first and second years.

(2) Outline of work laid out for third year.

2. *Resistance in still water, moving obliquely in a straight line.*3. *Resistance in still water, curvilinear movement.*4. *Turning.*

Action of rudders—fluid pressure, experiments, strains on rudder and steering gear, compensation, forms and dimensions of rudders, effect of screw, turning effect, motion of the vessel in turning, method of determination and representation of movement, turning trials.

5. *Rolling in a seaway without resistance.*

(1) Waves—Hydrodynamic principles, theories, trochoidal theory, influence of depth of water, influence of friction, the genesis of waves at sea, effect of force of wind, observation of waves, regular waves, confused sea, tidal waves.

(2) Unresisted rolling in a seaway.

Theories—Equation for movement—Graphic determination—Movement under varying initial conditions—Forced synchronism, assuming waves to have form of curve of sines and to have trochoidal form—Rankine's differential equation.

6. *Resisted rolling in a seaway.*

Difference between the resistance in still water and in a seaway.

Method of de Bussy, Graphic method of Froude.

Results of experiments, Synchronism.

Effect of speed.

Effect of turning.

Effect of firing guns.

7. *Propulsion.*

(1) Propulsion by steam.

The powering of ships, methods of determination, coefficient method, model tank method, independent estimate, Kirk's analysis. curves.

Analysis of trials, absorption of power, distribution of power.

The screw propeller. action upon the water, shape of blades, pitch, diameter, slip, efficiency, design of screw propeller to fulfill given conditions.

The paddle wheel—action upon the water, feathering blades, determination of dimensions.

Hydraulic propellers, jet propellers, turbines.

7. *Propulsion*—Continued.(2) *Propulsion by sails.*

Sail spread, center of effort, center of lateral resistance, balancing, stability under sail.

Action of the wind on sails, effect of heeling.

8. *Vibration.*

Causes of vibration in ships.

Comparison with vibrations of rods and strings.

Period of vibration, nodes.

C.—PRACTICAL WORK—DRAWING OFFICE.

a. First year.

1. Reproduce the given plans of a vessel, by taking off table of offsets, laying off from same and fairing.
2. Make displacement calculations and fill out displacement sheets from the table of offsets, construct all curves.
3. Make stability calculations from same plans, fill out stability sheets, construct all curves.
4. Prepare calculations for preliminary design of a battle ship, of a cruiser, of a torpedo boat, powering distribution of weight, armament, armor distribution.

b. Second year.

Design work begun of a battle ship, a cruiser, and torpedo boat; sheer draft completed; midship section with scantling completed; deck plans and inboard profile begun.

c. Third year.

Plans of battle ship, cruiser, and torpedo boat completed, including ventilation plans and drainage plans; Calculations for and construction of displacement and stability curves; Calculations for longitudinal strains in still water and among waves; Equivalent girder construction.

Calculations for center of gravity and for trim.

Docking plans.

Launching calculations and curves.

Stability calculations for damaged condition.

Rudder calculations, diameter of rudder head.

Working up a given inclining experiment from the return of observations taken.

Making out specifications.

D.—PROGRAMME OF AUXILIARY COURSES.

Auxiliary courses are given in the following academic departments: Department of steam engineering, department of mechanics, department of physics, department of languages; the subject-matter in detail is determined in each case by conference between the officer in charge of post-graduate course and the head of the academic department concerned.

*A.—Outline of the subject-matter in the Department of Steam Engineering.**First year.*

1. Comprehensive scan of the rôle of the steam engine in modern life and its application for marine purposes.
Historical outline of the development and growth of the steam engine, and of the marine steam engine in particular.

2. Outline of the elements or features of a marine steam engine—boiler, engine proper, condenser, propeller, and shafting.
3. Study of the engine proper.
Cylinders and their accessories.
Valves and valve gear.
Piston, piston rods, connecting rods, guides, crossheads, etc., foundation castings, pillars, crank shafts, line shafts, propeller shafts, etc.
4. The principles and method of procedure in engine design.
Question of weight, of encumberment, length of stroke, number of revolutions; determination of dimensions of cylinders, pistons, piston rods, etc.
Distribution of steam and valve design.
5. Practical work in drawing office.
Reproduction of the principal parts of an engine from plans of a given engine.
Valve diagrams.
Calculations preliminary to an engine design.
Engine design begun.

Second year.

1. Outline review of first year's work.
2. Study of marine boilers, cylindrical and water, tubulous; parts of same and accessories.
3. Principles and methods of procedure in boiler design.
Boiler dimensions, heating and grate surface, funnel dimensions. scantling, staying, etc.
4. Study of condensers—different kinds, parts of a surface condenser, design of a surface condenser, dimensions, surface, etc.
5. The conduct of trials.
6. Practical work in drawing office.
Engine design completed, boiler design begun; working up data and curves of a speed trial from the observations taken.

Third year.

1. Outline review of work of first and second year.
2. Study of propellers—the paddle wheel and the screw propeller.
3. Principles and method of procedure in propeller design (to coördinate with study in course in naval architecture).
4. Auxiliary machinery—pumps, fans, etc., lubrication.
5. Heat—thermodynamics (treated comprehensively, not in detail); steam.
Application of heat to bodies—Application of heat to water.
Principle of equivalence—Carnot's principle.
Cycles—reversible and nonreversible.
Study of the cycle of thermal operations in a steam engine.
6. Combustion and fuels.
7. Procedure and operations in the construction and erection of engines, boilers, condensers; work of foundry, boiler shop, machine shop.
8. Practical work in drawing office.
Boiler design completed.
Design of a propeller.

*B.—Outline of subject-matter in the Department of Mechanics.**First year.*

1. Outline of the field—applications in marine construction, both hulls and engines.

2. Hydraulics begun—confined to outline of properties of liquids at rest and in motion: application to a floating body.
3. Dynamics of machines begun—kinetic energy; principle of work; sources of energy, illustrations, application to the steam engine, crank efforts, fluctuations in energy and speed, effect of reciprocating parts, fly wheel, etc.
4. Strength of materials begun.
Simple resistance; tension, compression; shearing; compound resistance; bending alone, and bending and tension, compression, or shearing, combined, torsion.
Dynamic resistance, impact.
Stresses and strains.

Second year.

1. Strength of materials, completed.
The elastic strength, ultimate strength, elastic elongation, ultimate elongation in tension and compression of the usual structural materials, steel and iron, copper, brass and bronzes, aluminium, tin, zinc, etc.; woods, stone, cement, mortar, etc.
The adaptability of the above materials for the various kinds of structures.
2. Hydraulics, completed.
Viscosity—frictional resistance on surfaces, loss in flow through pipes, hydraulic motors, hydraulic transmissions of energy, pumps, turbines, action of propellers.
3. Dynamics, completed.
Friction—sliding friction, friction of bearings and pivots, rolling friction, friction of belts and ropes, of brasses.
Stresses in machines.

Third year.

1. Pneumatics—properties of gases (in outline).
Cycle of a pneumatic motor, expansive energy, transmitted energy, efficiency.
2. Statics of Structures.
Framework—triangular, incomplete, compound strains in loaded structures, beams, framework girders, girders with redundant bars, strains produced by traveling loads.
Structures of uniform strength.
3. Kinematics of Machines.
Kinematic chain—crank chains, screw chains, mechanism of a direct-acting engine, pulley and chain, wheel and axle, rolling contact, endless screw and worm wheel.
Cams—Ratchets.

C.—Outline of subject-matter in the Department of Physics.

First year (beginning with second term).

1. The Chemistry of Fuels. (Lectures and Experiments.)
Coal, coke, briquettes, wood, charcoal, petroleum, coal gas.
Calorific intensity, calorific value.
Evaporative powers, composition, ash.
Spontaneous combustion, adaptability for marine purposes.
2. Practical photography—adapted for use in shipyard observation.

Second year.

1. The Chemistry of Structural Metals.

Metallurgy—lectures and experiments.

Iron—ores, extraction, cast iron, blast furnaces, wrought iron, puddling, Bessemerizing, steel, cementation, Bessemer process, Siemens-Martin process, crucible steel, Krupp steel, Whitworth steel, nickel steel, casehardening, armor plates, Harvey process.

Coppers—outline of metallurgy.

2. The Chemistry of Ventilation.

Amount of air required for respiration and for preservation of material.

Effect of heating and lighting systems.

Requirement of service on shipboard.

Third year.

1. Electricity—practical course in generation, transmission, and conversion or utilization of electricity; lectures and experiments; dynamos, motors, conductors, storage batteries.

2. Fouling, corrosion, and preservation.

Lectures and experiments.

Phenomena of corrosion—oxidation, galvanic action, corrosion of ship's bottom, attachment and growth of animal and vegetable life; the chemistry of preservation—sheathing, metallic poisons, exfoliation; preservative compositions—white lead, white zinc, red lead, Rathjen's composition, McInnes compositions, other compositions.

3. The chemistry of lubricants and lubrication.

Lectures and experiments.

Liquid lubricants—fatty oils, mineral oils, mixed oils; solid lubricants; corrosion induced by lubricants.

D.—Outline of subject-matter in the Department of Languages.

First year—French and German.

Second year—French, German, and Spanish.

Third year—French, German, and Spanish.

All courses essentially practical.

In conjunction with these courses the students, in pursuing the principal courses, will use reference books in the foreign languages as soon as they are competent. In addition, periodical lectures will be given in French.

E.—Additional features relating to auxiliary courses.

1. Studies in what may be termed the pure mathematics group are taken only as they come up and are applied to the principal courses.
2. The hours for courses in academic departments are arranged so as to interfere least with the hours of the academic department concerned, and to fit as far as may be the hours of the principal courses.
3. The courses are by lectures accompanied by the working out of problems or investigations on the part of the students.

Marks are assigned as the result of examinations as follows:

- (1) Oral examinations or quizzes at various times during the courses.
- (2) Written examinations upon the completion of each main subject or division of the course in question.
- (3) Final written examination upon the completion of each course.
The oral examinations in a division of a course have, combined, the same weight as the written examination in the division.
The final examination in a course has the same weight as the oral and written examinations of the divisions of the course.
4. The amount of time given to each auxiliary course is apportioned according to the relative importance of the course in each case, reflected in the multiple assigned.

Schedule of multiples.

Principal courses, combined.....	800
Auxiliary courses, combined.....	400
Assiduity	40
Total	1,240
Multiple for academic course.....	760
Grand total	2,000

Principal courses.

Naval architecture.....	250
Shipbuilding	250
Summer missions and practical work in drawing office	300
	800

Auxiliary courses.

Department of steam engineering.....	230
Department of mechanics.....	80
Department of physics.....	50
Department of languages.....	40
	400

The day is divided into two periods, forenoon and afternoon, from 9 a. m. till noon, and from 1 p. m. till 4 p. m. (The afternoon period suspended on Saturdays.)

Four of the forenoon periods and four of the afternoon periods of each week are devoted to the principal courses; namely, forenoon periods on Monday, Wednesday, Friday, and Saturday, and afternoon periods on Monday, Wednesday, Thursday, and Friday.

Two forenoon and one afternoon period remaining in each week are devoted to auxiliary courses.

The afternoon periods are devoted essentially to practical work, and not less than two hours of each are spent in the drawing office.

In addition to the above, four evening periods per week, from 8 p. m. till 9 p. m., are devoted to the department of languages.

Schedule for auxiliary courses:

First term.

Forenoon period Tuesday:

Two hours to department of steam engineering.

One hour to department of mechanics.

Forenoon period Thursday:

Two hours to department of steam engineering.

One hour to department of mechanics.

Afternoon period Tuesday:

Department of steam engineering.

Second term.

Forenoon period Tuesday:

One and one-half hours to department of steam engineering.

One and one-half hours to department of mechanics.

Forenoon period Thursday:

One hour to department of steam engineering.

Two hours to department of physics.

Afternoon period Tuesday:

Department of steam engineering.

Annual register

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